



ETL Systems

Excelling in RF Engineering

Model Number: ALT-C303-2U-x5x5 chassis  
ALT-R-L1-006 / ALT-R-L1-008 /  
ALT-R-L1-012 / ALT-R-L1-019 /  
ALT-R-L1-021 / ALT-R-L1-023 /  
ALT-R-L1-028 / ALT-R-L1-032  
modules

# Alto series L-band 2+1 Redundant Amplifier with variable gain (50Ω system)

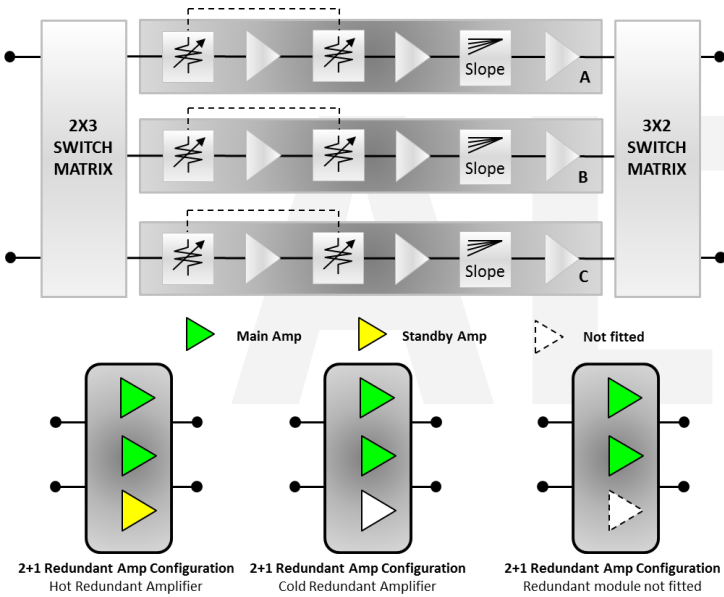
The Alto series of amplifiers provide excellent RF performance with a wide range of functionality, in a compact chassis. They are designed with hot swap amplifier modules to enhance resilience and flexibility.

**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



**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



**Redundancy configuration** 2+1 Redundancy



## Amplifier Module Options



**850 - 2150 MHz** L-Band operating frequency range



**Variable gain & slope compensation** to balance input signals



**Low Noise options** for prime signal quality



**High Linearity options** ensures overall RF gain signal performance is optimised





Chassis - Specification	
Model Numbers	ALT-C303-2U -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	5.1 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 55 °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-L1-019	ALT-R-L1-021	ALT-R-L1-023	ALT-R-L1-028	ALT-R-L1-032	
Frequency Range	850-2150 MHz (L-band)								
Gain	Maximum	30 ± 1.5 dB	22 ± 1.5 dB	34 ± 2 dB	40 ± 2 dB	31 ± 1.5 dB	42 ± 2 dB	36 ± 2 dB	40 ± 2 dB
	Minimum	0 ± 1.5 dB	-1 ± 1.5 dB	4 ± 2 dB	10 ± 2 dB	4 ± 1.5 dB	12 ± 2 dB	6 ± 2 dB	10 ± 2 dB
Flatness	850-2150MHz	± 1 dB	± 1.25 dB	± 1.25 dB	± 1.75 dB	± 1 dB	± 1.5 dB	± 1.75 dB	± 1.25 dB
	Over 36MHz	± 0.25 dB	± 0.25 dB	± 0.25 dB	± 0.35 dB	± 0.2 dB	± 0.25 dB	± 0.25 dB	± 0.35 dB
Gain Steps		0.5 ± 0.1 dB	0.5 ± 0.1 dB	1 ± 0.15 dB	1 ± 0.15 dB	0.5 ± 0.1 dB	0.2 ± 0.1 dB	1 ± 0.2 dB	1 ± 0.15 dB
Input Return Loss	Typical	13 dB	16 dB	16 dB	16 dB	18 dB	16 dB	16 dB	16 dB
	Minimum	9 dB	11 dB	10 dB	10 dB	15 dB	12 dB	12 dB	10 dB
Output Return Loss	Typical	13 dB	13 dB	16 dB	13 dB	16 dB	16 dB	16 dB	13 dB
	Minimum	9 dB	9 dB	10 dB	10 dB	10 dB	12 dB	12 dB	10 dB
Slope Control Range	0 to 5 dB					-	0 to 5 dB		
Slope Control Steps	1 ± 0.5 dB					-	1 ± 0.5 dB		
Noise Figure	Typical	12.5 dB	13.5 dB	12.5 dB	8 dB	11.5 dB	5.3 dB	7.5 dB	8 dB
	Maximum	14.5 dB	15.5 dB	14.5 dB	10 dB	13.5 dB	7.3 dB	9.5 dB	10 dB
1dB GCP	Typical	12.5 dBm	19.5 dBm	15.5 dBm	23 dBm	23 dBm	23 dBm	23 dBm	23 dBm
	Minimum	10.5 dBm	17.5 dBm	13.5 dBm	21 dBm	21 dBm	21 dBm	21 dBm	21 dBm
OIP3	Typical	24.5 dBm	32.5 dBm	35.5 dBm	36.5 dBm	37.5 dBm	32.5 dBm	35.5 dBm	35.5 dBm
	Minimum	21.5 dBm	29.5 dBm	32.5 dBm	33.5 dBm	34.5 dBm	29.5 dBm	32.5 dBm	32.5 dBm
OIP2	Typical	40.5 dBm	42.5 dBm	46.5 dBm	48.5 dBm	56.5 dBm	43.5 dBm	44.5 dBm	44.5 dBm
	Minimum	38.5 dBm	40.5 dBm	44.5 dBm	46.5 dBm	54.5 dBm	41.5 dBm	42.5 dBm	42.5 dBm
Isolation	Typical	60 dB							
	Minimum	50 dB							
Max total RF i/p power	20 dBm damage level, not operational								

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