ETL Systems
Excelling in RF Engineering

Model Number:
ALT-25104

2+1 Redundant Alto Amplifier

with 80 dB maximum gain & 50 dB gain control range

Model ALT-25104 is part of the Alto amplifier range, providing 2+1 redundancy with automatic switching of the input to the main or standby output based on amplifier current monitoring via a 2x2 transfer switch.

It can be operated in one of two modes:

- Amplifier tracking ON: Amplifier gain and slope control is common to both modules in the chassis.
- Amplifier tracking OFF: Each amplifier can be independently set by operator-selected slope and gain setting.

Typical applications:

- Suitable for use as an L-band LNA
- Headend amplification of small signals
- UHF applications
- Compensation for passive splitters /combiners & cable loss
- General satcoms – teleports, video head-ends, TVRO

2+1 Redundancy with auto switch over for reliability

Low noise for optimum signal quality

850 - 2150 MHz operating frequency range

Capacity for 3 active signal paths, main & stand-by signal paths have separate input & output ports.

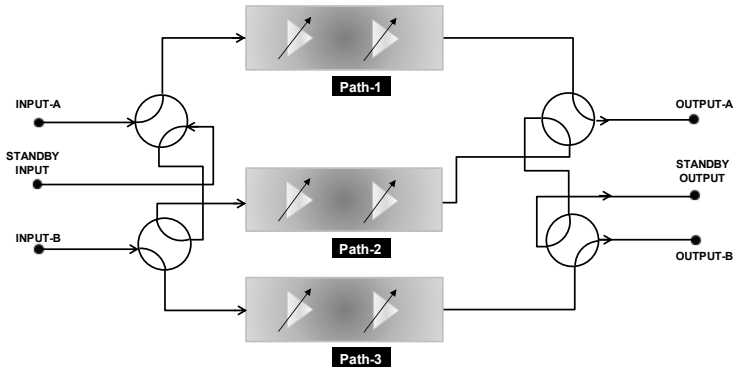
Local control & monitoring via front panel push buttons & display

80dB maximum gain & 50dB gain control range

Compact housed in a 1U high chassis

Resilience from 2+1 redundancy & hot-swap dual redundant PSUs

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



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Technical specifications and operating parameters

RF Parameters				
Capacity			3 inputs, 3 outputs	
Redundancy			2+1 redundancy	
Frequency Range			850-2150 MHz (L-band)	
Gain	Maximum		80±2 dB optional extended gain range	
	Minimum		30±2 dB optional extended gain range	
Gain Flatness (over full band 850-2150MHz)	At maximum gain		±1.75 dB	
	Over 50 to 80 dB gain range		±2.25 dB	
	Over 30 to 80 dB gain range		±3.00 dB	
Gain Flatness (over 40 MHz)	At maximum gain		±0.25 dB	
	Over 50 to 80 dB gain range		±0.30 dB	
	Over 30 to 80 dB gain range		±0.40 dB	
Gain Tracking	At maximum gain		±0.75 dB	
	Over 50 to 80 dB gain range		±1.25 dB	
	Over 30 to 80 dB gain range		±1.50 dB	
Gain / Time Stability			±0.15 dB	Over 24 hours at spot frequency at a given temperature.
Gain Steps			1±0.25 dB typical	
Input Return Loss	At maximum gain	Typical	18 dB	At 80 dB gain setting
		Minimum	12 dB	
	Over 50 to 80 dB gain	Typical	18 dB	Over 30 dB gain control setting
		Minimum	10 dB	
	Over 30 to 80 dB gain	Typical	18 dB	Over 50 dB gain control setting
		Minimum	9 dB	
Output Return Loss	At maximum gain	Typical	18dB	At 80 dB gain setting
		Minimum	12 dB	
	Over 50 to 80 dB gain	Typical	18 dB	Over 30 dB gain control setting
		Minimum	10 dB	
	Over 30 to 80 dB gain	Typical	18 dB	Over 50 dB gain control setting
		Minimum	9 dB	
Reverse Gain			<-50 dB typical	
Noise Figure	Typical		5.5 dB	At maximum gain
	Maximum		7.5 dB	
1dB GCP	Typical		15 dBm	At maximum gain
	Minimum		12 dBm	
OIP3	Typical		25 dBm	At maximum gain
	Minimum		21 dBm	
Isolation			>50 dB	Between the amp modules when both are set to the same gain setting.
Spurii			<-85 dBm	Signal independent

Reliability		
Maximum Input Level	+20 dBm	Maximum without damage
Chassis MTBF	>120,000 hrs	Includes PSUs
AMP MTBF	>150,000 hrs	MTBF of each amplifier unit. Note that each line has 2 amps in cascade.
MTTR	15 minutes (10 to retrieve spare, 5 to replace)	Applies to LRUs only, ie. Hot swap modules. PSUs are hot swap.

Environmental		
Operating Temperature	0 to 45˚C	-10 to 50˚C extended (optional)
Location	Indoor use only	
Storage Temperature	-20˚C to +75˚C	
Humidity	20 to 95% non-condensing	Relative humidity

Power		
PSU Power	85-264Vac 50-60Hz	Fused 2A
AC Consumption	<200W	Max. consumption at steady state
PSU	Dual redundant	Hot-swap

System Control	
Local Control & Monitoring	Via Front Panel LCD and push buttons
Remote Control & Monitoring	RJ45 Ethernet port 10/100 Base T. TCP/IP, SNMP & Web browser interface.
Amplifier Bias Voltages	Voltage to each amplifier stage within the amplifier modules is continuously monitored
Amplifier Supply Voltages	Supply from PSU to each amp is continuously monitored
Temperature Monitoring	For each amplifier module, CPU module & chassis
PSU Status	Each PSU is individually monitored & reported

Operating Modes		
Amplifier Tracking ON	Amplifier gain and slope control is common to all modules in the chassis.	Allows **virtually** instantaneous switch over because the redundant amp modules have the same gain and slope setting as those of the main amps.
Amplifier Tracking OFF	Each amplifier can be independently set by operator selected slope and gain setting.	Redundant amplifier is set to same settings as that of the replaced amplifier prior to switch over. Switch over time 10-30ms

Physical	
RF Connectors & Impedances	50Ω SMA, 50Ω N-type, 50Ω BNC
Dimensions	1U high x 450mm deep x 19" wide rack mountable
Weight	10 kg (TBC)
Colour	RAL9003-White (semi-matte)

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