



Alto series S-Band to Ku-band 1:1 Redundant Amplifier (50Ω system)

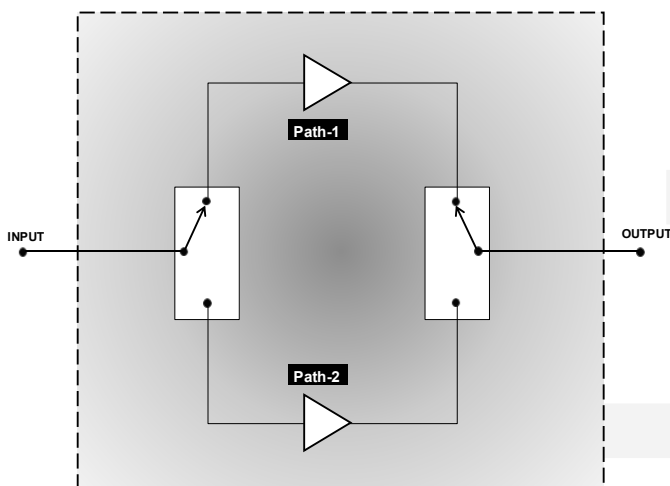
The Alto series of amplifiers provide excellent RF performance with a wide range of functionality, in a compact chassis. They are designed with hot swap amplifier modules to enhance resilience and flexibility.

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 & forced air cooling tray modules



Remote control & monitoring via RJ45 Ethernet port and D-type serial port with SNMP & web browser interface



Local control & monitoring via front panel push buttons & display

Redundancy configuration 1:1 Redundancy



Hot-swap power supplies, forced air cooling trays and amplifier modules (rear panel view of similar model)

Amplifier Module Options



2.0 - 18 GHz
Operating frequency range options



Low Noise options
for prime signal quality





Chassis - Specification

Model Numbers	ALT-C402-2U			
Dimensions	2U high x 450mm deep x 19" wide			
Capacity	2 modules: 1:1 redundancy			
Stand-by amplifier options	Hot or cold standby options - operator selectable			
Cooling	Convection cooled, hot-swap fan tray			
Impedance & RF Connectors	50 Ω SMA			
Weight / Colour	<10 kg (fully populated)		White 00-E-55 semi-gloss	
PSU	Hot-swap, (from front panel) dual redundant, Diode OR			
PSU Power	85-264Vac 50/60 Hz, 130W			
AC Consumption	< 100W			
Local control & monitoring	LCD and keypad - via front panel			
Remote control & monitoring	Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMP & web browser interface / 9 pin D-type port for dry contact alarms , RS232 & RS485			
Monitoring	Amplifier supply voltages: supply from PSU to each amplifier module is continuously monitored	Temperature monitoring: each amplifier module, CPU board & equipment chassis	PSU status: each PSU is individually monitored & reported	Fan tray: triggered by temperature monitoring system. Hot-swap tray with multiple fans. When ON, the fan speed is monitored & reported
MTBF	Amplifier Module: >150,000 hours	Chassis: > 200,000 hours (excludes coax switches & hot-swap modules)		Coax switches: >1,000,000 cycles
Temperature / Humidity	Operating: 0 to 45 °C	Storage: -20 to +75 °C Indoor use only		20% to 90% non-condensing Relative humidity
Maximum input level	+20 dBm For no damage			

Amplifier Module Options - RF Parameters

Amp Module Model Numbers		ALT-R-KB-200	ALT-R-K0-200	ALT-R-KB1-200	ALT-R-KB2-200	ALT-R-KB3-300	ALT-R-KB4-200
Frequency Range (GHz)		2.0 - 18	6.0 - 18	2.0 - 8.0	2.0 - 10	2.0 - 13	2.0 - 16
Gain (dB)		21 $\pm$ 3.25	21 $\pm$ 2.75	22 $\pm$ 2.25	22 $\pm$ 2.50	22 $\pm$ 2.50	21 $\pm$ 2.75
Flatness (dB)	Full band	$\pm$ 3.35	$\pm$ 2.5	$\pm$ 1.65	$\pm$ 1.85	$\pm$ 1.85	$\pm$ 2.10
	Over 36MHz	$\pm$ 0.35	$\pm$ 0.35	$\pm$ 0.30	$\pm$ 0.30	$\pm$ 0.35	$\pm$ 0.35
	Any 72MHz	$\pm$ 0.65	$\pm$ 0.65	$\pm$ 0.50	$\pm$ 0.50	$\pm$ 0.55	$\pm$ 0.60
Input Return Loss (dB)	Typical	16	16	18	18	16	16
	Minimum	8	8	10	10	9	9
Output Return Loss (dB)	Typical	16	16	18	18	16	16
	Minimum	8	8	10	10	9	9
Isolation	Typical	80	80	80	80	80	80
	Minimum	60	60	65	65	65	60
Reverse Gain (dB)		-40	-40	-40	-40	-40	-40
Noise Figure (dB)	Typical	5.0	5.0	4.5	4.5	4.5	5.0
	Maximum	6.5	6.5	6.0	6.0	6.0	6.5
1dB GCP (dB) output power	Typical	21.0	21.5	22.5	22.5	22.5	22.5
	Minimum	18.5	19	19.0	19.0	19.0	19.0
OIP3	Typical	25	25	29	29	26	25