ETL Systems

Excelling in RF Engineering

Model Number: 25703

2+1 Redundant Alto Amplifier with high linearity & low noise settings & variable gain

Model 25703 is part of the Alto plus amplifier range. It can be operated in one of three modes:

- Optimum Noise: Maintains the lowest noise figure across the dynamic range.
- Optimum Linearity: Maintains the optimum 1dB GCP, OIP3 and OIP2 across the dynamic range.
- Optimum Compromise: Provides the best trade off by maintaining low noise figure at low signal levels (high gain settings) and optimum linearity at high signal levels (lower gain settings).

Typical applications:

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

2+1 Redundancy for reliability

Low noise & high linearity for optimum signal quality

850 - 2150 MHz operating frequency range

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

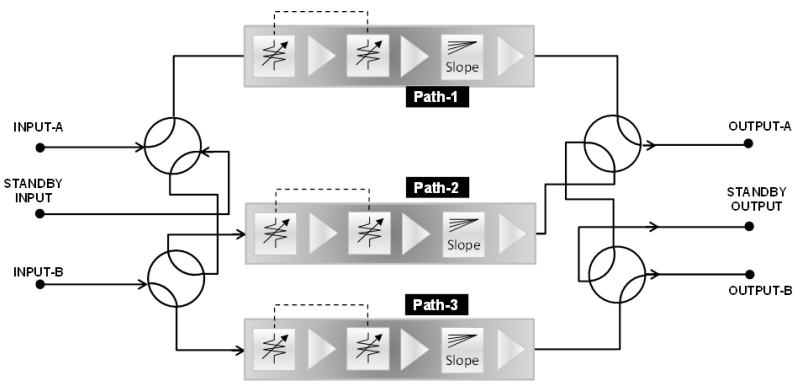
>40dB Variable gain to balance input signals

Compact housed in a 2U high chassis

Local control & monitoring via front panel push buttons & display

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

Simplified block diagram



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Technical specifications and operating parameters

RF Parameters				
Spec Version		2.0		
Capacity		3 inputs, 3 outputs		
Redundancy		2+1 redundancy		
Frequency Range		850-2150 MHz (L-band)		
RF Connectors		50Ω SMA	50Ω N-type	50Ω BNC
Gain	Maximum	44 ± 2 dB		
	Minimum	-6 ± 2 dB		
Flatness	850-2150MHz	±1.25 dB		
	Any 40MHz	±0.2 dB		
Gain Tracking		±0.75 dB 2 channels set to same gain		
Gain/Time Stability		±0.15 dB over 24 hours at spot frequency at a given temperature		
Gain Steps	Nominal	1 ± 0.15 dB	Nominal control steps & fine control steps can be combined to give 30 dB gain control range in 0.2 dB steps.	
	Fine Control	0.2 ± 0.05 dB		
Input Return Loss	Typical	21 dB		
	Minimum	15 dB		
Output Return Loss	Typical	21 dB		
	Minimum	14 dB		
Reverse Gain		<-40 dB typical		
Noise Figure	Typical	2.8 dB	At maximum gain setting & at room temperature, 20°C.	
	Minimum	3.5 dB		
1dB GCP	Typical	23 dB	At maximum gain setting & at room temperature, 20°C.	
	Minimum	19 dB		
OIP3	Typical	23 dB	3rd order intercept point, output power. At max gain setting.	
	Minimum	19 dB		
OIP2	Typical	53 dB	2nd order intercept point, output power. At max gain setting	
	Minimum	45 dB		
Isolation		>50 dB	Isolation between the amplifier modules when both are set to the same gain setting.	
Spurii		<-85 dBm	Signal independent	
Chassis MTBF		>120,000 hrs		
AMP MTBF		>150,000 hrs		

Environmental	
Operating temperature	0 to 45˚C Nominal -10 to 50˚C Extended (optional)
Location	Indoor use only
Storage temperature	-20˚C to +75˚C
Humidity (RH)	20 to 90% non-condensing
Altitude	Operational -10,000 ft Storage - 30,000 ft Above Mean Sea Level
Max input level	+20 dBm

System Control	
Local Control	Via Front Panel LCD and Keypad.
Remote Control & Monitoring	RJ45 Ethernet port 10BaseT/100 BaseTx ETL protocol over TCP; SNMP; Built-in Web Server.
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	Each amplifier module: CPU module & Chassis
PSU Status	Each PSU 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.
Optimum Noise	Maintains optimum NF across the dynamic range.	Factory default mode is best compromise. Either one of these 3 modes is user selectable.
Best Linearity	Maintains optimum 1dB GCP, OIP3 & OIP2 across dynamic range.	
Best Compromise	Provides best NF at high gain (low signal) and best linearity at low gain (high signal levels).	

Power		
PSU Power	85-264Vac 50-60Hz	Fused 2A
AC Consumption	<100W	Total AC, steady state.
PSU	Dual redundant	Hot swap

Physical	
Dimensions	2U high x 450mm deep x 19" wide
Weight	7.5 kg
Colour	White 00-E-55 semi-gloss

ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

FACSIMILE
+44 (0)1981 259021

WEB
www.etlsystems.com