



Alto L-Band Redundant Amplifier

with low noise, high linearity, variable gain and slope control

Typical applications:

- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

ALT-G1R-S3-101 is an L-band hot swap low noise & high linearity redundant amplifier, with variable gain and slope control designed to fit into the 1U Genus chassis. The 1U redundancy chassis has the capacity for 1+1, 2+1 and 4+2 hot-swap module configurations.

Amplifier Module



Amplifier Module

Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 1 slot in the chassis.



Hot Swap & replaceable RF Amplifier module



Variable Gain & Slope

For balancing input signals.



Extended L-Band

850-2450 MHz operating frequency range



Low Noise

For prime signal quality



High Linearity

Ensures overall RF gain signal performance is optimised

Chassis Options



Local control & monitoring via HMI high resolution touchscreen



Flexible Module Configurations choose from a mixture of amplifier modules with different operating frequencies.



Resilience from dual redundant hot-swap power supplies & field replaceable CPU & HMI



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



Compact indoor chassis options, which can be part populated



Field replaceable Internal 10MHz reference source and external reference inject port with auto detection (optional)



Secure protocols with SNMPv3 and HTTPS



Indoor Chassis





1:1 Redundant Amplifier Module - RF Parameters	
Model Numbers	ALT-G1R-S3-101 (The spec below is for ALT-G1R-S3-101 in 1:1 redundancy configuration with SWF-G1R-SX-101)
Frequency Range	850-2450 MHz
RF ports	50Ω SMA
Gain	Max. 42±2 dB
	Min. -7±2 dB
Gain Flatness	850 to 2450 MHz ±1.0 dB
	Any 36 MHz ±0.3 dB
Gain Steps	0.25±0.15 dB
Slope Control Range	0-6 dB (Pivot point at 2450 MHz)
Slope Control Steps	1±0.25 dB
Input Return Loss	16 dB typ. 12 dB min
Output Return Loss	16 dB typ. 12 dB min
Reverse Gain	< -60 dB Typical
Isolation	60 dB Typical 50 dB Minimum (With amplifiers set at the same gain level. Worst case isolation is between adjacent amps, isolation degrades dB-to-dB for different gain levels.)
Noise Figure	Typ. 5.0 dB At max gain setting
	Max. 6.0 dB At max gain setting
1dB GCP	Typ. 19 dBm At max gain setting
	Min. 16 dBm At max gain setting
OIP3	Typ. 31 dBm At max gain setting
	Min. 28 dBm At max gain setting
OIP2	Typ. 44 dBm At max gain setting
	Min. 40 dBm At max gain setting
In band, signal independent spuri	<-85 dBm max. Very low level spuria from CPU clock, switch mode PSU and other control electronics inside the chassis
Operating Temperature	0 to 50°C , for indoor use only
Storage Temperature	-20°C to +75°C . Equipment not powered
Altitude	10,000ft/3000m AMSL
Humidity	20 to 90% non-condensing RH
MTBF	>150,000 hrs. MTBF of each amp module. These are hot-swap
Maximum Input Level	+20 dBm. For no damage. None operational.
Module Weight	0.35 kg
Spec Version	0.1

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

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

TELEPHONE
+44 (0)1981 259020

WEB
www.etlsystems.com

EMAIL
info@etlsystems.com





2+1 Redundant Amplifier Module - RF Parameters	
Model Numbers	ALT-G1R-S3-101 (The spec below is for ALT-G1R-S3-101 in 2+1 redundancy configuration with SWF-G1R-SX-114)
Frequency Range	850-2450 MHz
RF ports	50Ω SMA
Gain	Max. 38±2 dB
	Min. -11±2 dB
Gain Flatness	850 to 2450 MHz ±1.2 dB
	Any 36 MHz ±0.3 dB
Gain Steps	0.25±0.15 dB
Slope Control Range	0-4 dB (Pivot point at 2450 MHz)
Slope Control Steps	1±0.25 dB
Input Return Loss	14 dB typ. 10 dB min
Output Return Loss	14 dB typ. 10 dB min
Reverse Gain	< -60 dB Typical
Isolation	60 dB Typical 50 dB Minimum (With amplifiers set at the same gain level. Worst case isolation is between adjacent amps, isolation degrades dB-to-dB for different gain levels.)
Noise Figure	Typ. 6.0 dB At max gain setting
	Max. 7.0 dB At max gain setting
1dB GCP	Typ. 19 dBm At max gain setting
	Min. 16 dBm At max gain setting
OIP3	Typ. 31 dBm At max gain setting
	Min. 28 dBm At max gain setting
OIP2	Typ. 41 dBm At max gain setting
	Min. 37 dBm At max gain setting
In band, signal independent spuri	<-85 dBm max. Very low level spuria from CPU clock, switch mode PSU and other control electronics inside the chassis
Operating Temperature	0 to 50°C , for indoor use only
Storage Temperature	-20°C to +75°C . Equipment not powered
Altitude	10,000ft/3000m AMSL
Humidity	20 to 90% non-condensing RH
MTBF	>150,000 hrs. MTBF of each amp module. These are hot-swap
Maximum Input Level	+20 dBm. For no damage. None operational.
Module Weight	0.35 kg
Spec Version	0.2

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

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

TELEPHONE
+44 (0)1981 259020

WEB
www.etlsystems.com

EMAIL
info@etlsystems.com





4+2 Redundant Amplifier Module - RF Parameters	
Model Numbers	ALT-G1R-S3-101 (The spec below is for ALT-G1R-S3-101 in 4+2 redundancy configuration with SWF-G1R-S5-103-S5S5)
Frequency Range	850-2450 MHz
RF ports	50Ω SMA
Gain	Max. 36±2 dB
	Min. -13±2 dB
Gain Flatness	850 to 2450 MHz ±1.2 dB
	Any 36 MHz ±0.3 dB
Gain Steps	0.25±0.15 dB
Slope Control Range	0-5 dB (Pivot point at 2450 MHz)
Slope Control Steps	1±0.25 dB
Input Return Loss	14 dB typ. 10 dB min
Output Return Loss	14 dB typ. 10 dB min
Isolation	60 dB Typical (850-2150MHz) 50 dB Minimum (850-2150MHz) 55 dB Typical (2150-2450MHz) 45 dB Minimum (2150-2450MHz) (With amplifiers set at the same gain level. Worst case isolation is between adjacent amps, isolation degrades dB-to-dB for different gain levels.)
Reverse Gain	< -60 dB Typical
Noise Figure	Typ. 6.0 dB At max gain setting
	Max. 8.0 dB At max gain setting
1dB GCP	Typ. 18 dBm At max gain setting
	Min. 15 dBm At max gain setting
OIP3	Typ. 30 dBm At max gain setting
	Min. 27 dBm At max gain setting
OIP2	Typ. 40 dBm At max gain setting
	Min. 36 dBm At max gain setting
In band, signal independent spuri	<-85 dBm max. Very low level spuria from CPU clock, switch mode PSU and other control electronics inside the chassis
Operating Temperature	0 to 50°C , for indoor use only
Storage Temperature	-20°C to +75°C . Equipment not powered
Altitude	10,000ft/3000m AMSL
Humidity	20 to 90% non-condensing RH
MTBF	>150,000 hrs. MTBF of each amp module. These are hot-swap
Maximum Input Level	+20 dBm. For no damage. None operational.
Module Weight	0.35 kg
Spec Version	0.2

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

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

TELEPHONE
+44 (0)1981 259020

WEB
www.etlsystems.com

EMAIL
info@etlsystems.com

