ETL Systems

Excelling in RF Engineering

Model Number:
ALT-G1R-S3-103

Alto L-Band Redundant Amplifier with low noise, high linearity and variable gain

Typical applications:

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

ALT-G1R-S3-103 is an extended L-Band hot swap low noise & high linearity redundant amplifier with variable gain, designed to fit into the 1U Genus Redundant 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 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

ETL Systems
New technologies
in RF distribution

Model Number: ALT-G1R-S3-101 & SWF-G1R-SX-101

1:1 Redundant Amplifier Module - RF Parameters		
Model Numbers		ALT-G1R-S3-103 (The spec below is for ALT-G1R-S3-103 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		N/A
Slope Control Steps		N/A
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 spurii		<-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

EMAIL
info@etlsystems.com

WEB
www.etlsystems.com

RoHS COMPLIANT
Pb-Free
nqa ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 015

ETL Systems
New technologies
in RF distribution

Model Number: ALT-G1R-S3-101 & SWF-G1R-SX-114

2+1 Redundant Amplifier Module - RF Parameters		
Model Numbers		ALT-G1R-S3-103 (The spec below is for ALT-G1R-S3-103 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		N/A
Slope Control Steps		N/A
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 spurii		<-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

EMAIL
info@etlsystems.com

WEB
www.etlsystems.com

RoHS COMPLIANT
Pb-Free
nqa ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 015

ETL Systems
New technologies
in RF distribution

Model Number: ALT-G1R-S3-101 & SWF-G1R-S5-103

4+2 Redundant Amplifier Module - RF Parameters		
Model Numbers		ALT-G1R-S3-103 (The spec below is for ALT-G1R-S3-103 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		N/A
Slope Control Steps		N/A
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 spurii		<-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

EMAIL
info@etlsystems.com

WEB
www.etlsystems.com

RoHS COMPLIANT
Pb-Free
nqa ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 015