



# Genus Chassis

## Flexible & resilient RF signal management

The Genus is a new generation of equipment for the ground segment to meet today's and future ground segment V/HTS requirements. The 3U Genus chassis accommodates up to 17 RF modules. These can be inserted whilst the shelf is in service giving excellent levels of flexibility and resilience.

- Typical applications:
- Teleports, ground stations, maritime high resilience applications and unmanned sites.
  - High resilience RF distribution where single points of failure can be minimised.
  - Redundancy applications for remote satellite teleports.
  - Signal distribution – 4-way high performance active splitters and combiners are available.



Compact & flexible 3U chassis holding up to 17 RF modules, which can be mixed.



Local control & monitoring via front panel capacitive HMI touchscreen.



Remote control & monitoring via RJ45 Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMP & Web Browser Interface



Secure Communications with SNMPv3, HTTPS



Splitters & combiners 4-way high performance active splitter and combiner RF modules. With fixed / variable gain & slope options, optional dual redundant amplifiers & LNB



Resilience from dual redundant hot-swap power supplies & field serviceable RF modules, HMI & CPU





Technical specifications and operating parameters

General Specifications	
Capacity	Up to 17 RF modules
Dimensions	3U high x 500mm deep x 19" wide
Weight	<10 kg
Colour	RAL9003 White (Semi-Matte)
AC Power	85-264V AC (50/60Hz)
AC Consumption	150W Max. consumption at steady state
PSU	Dual redundant & alarmed, Diode OR, Hot-swap
RF Modules	Single, field replaceable

Reliability	
MTTR	20 minutes 15 minutes to retrieve spare part and 5 mins to replace. Applies to LRUs only and assumed in house stock.
MTBF	Chassis >250,000
	CPU >250,000
Field serviceable components	RF modules, CPU & HMI
Hot-swap components	Dual redundant power supplies

Control & Monitoring	
Local Control	HMI, capacitive touchscreen
Remote Control & Monitoring	Ethernet via RJ45, 10BaseT/100BaseTx ETL TCP/IP protocol SNMP Built-in Web Server

Environmental	
Operating temperature	0 to 45°C
Location	Indoor use only
Storage temperature	-20°C to +75°C Not Powered
Humidity	20% - 90% non-condensing Relative Humidity
Altitude	Operational 2,000m AMSL (Above Mean Sea Level)
	Storage 8,000m AMSL (Above Mean Sea Level)

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.

RF Module Options								
Module Functionality Options	Operating Frequency	Active	Gain	Slope Compensation	LNB Powering	Dual redundant amplifiers	RF level detection	RF Power Limiting
	L-band		Variable	Variable				
4-way splitter modules	✓	✓	✓	✓	✓	✓	✓	
4-way combiner modules	✓	✓	✓	✓		✓	✓	✓

Custom RF modules may be available - If you have a requirement which isn't listed in the RF module options table please contact us.





# Genus 1U Chassis

**With Internal 10 MHz reference source.**

## Flexible & resilient RF signal management

The Genus chassis has a modular design which can house any combination of compatible modules within the unit. Supplying operators with a flexible and scalable solution, that reduces spare parts and rack space requirements.

The 1U chassis houses up to 17 RF modules including Amplifiers, BUC/LNB Power Supplies, Frequency Converters, Matrices, RF over Fibre, Redundancy Switches and Test Loop Translators, which can be mixed. Providing a compact 1U system that is **smaller in comparison with traditional 19" solutions, which could require 2U, 3U, 4U or more** to achieve the same functionality. The Genus chassis provides a cost-efficient solution with field-replaceable components.

The RF modules are field-serviceable and can be inserted whilst the shelf is in service, giving excellent levels of flexibility and resilience. With additional reliability from dual redundant hot-swap power supplies & field serviceable HMI, CPU and optional user replaceable internal 10MHz reference source with external 10MHz input options.

### Typical applications:

- Teleports, ground stations, maritime high resilience applications and unmanned sites.
- High resilience RF distribution where single points of failure can be minimised.
- Redundancy applications for remote satellite teleports.
- V/HTS gateways
- Signal distribution – Amplifiers, BUC/LNB Power Supply's, Frequency Converters, Matrices, RF over Fibre, Redundancy Switches, Test Loop Translators are available.



Compact & flexible 1U chassis holding up to 17 RF modules, which can be mixed.



Local control & monitoring via front panel capacitive HMI touchscreen.



10MHz reference source User replaceable internal 10MHz reference & distribution module. External 10MHz input card also available.



Remote control & monitoring via RJ45 Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMPv3 & Web Browser Interface



Secure Communications with SNMPv3, HTTPS



Flexible Signal Distribution  
Frequency converters, Redundancy Switches (N+1), RF Over Fibre, Matrices and Power Supply Modules are available.



Resilience from dual redundant hot-swap power supplies & field serviceable RF modules, HMI & CPU





Technical specifications and operating parameters

General Specifications	
Capacity	Up to 17 RF modules Note: Actual number dependent upon module type fitted
Dimensions	<b>1U high x 550mm deep x 19" wide</b>
Weight	<10 kg
Colour	RAL9003 White (Semi-Matte)
AC Power	85-264V AC (50/60Hz)
AC Consumption	150W Max. consumption at steady state
PSU	Dual redundant & alarmed, Diode OR, Hot-swap
CPU	User replaceable
RF Modules	Various. Hot-swap or field replaceable dependant upon module type

Control & Monitoring	
Local Control	HMI, capacitive touchscreen. Hot-swap
Remote Control & Monitoring	Ethernet via RJ45, 10BaseT/100BaseTx ETL TCP/IP protocol SNMPv3 & HTTPS Built-in Web Server

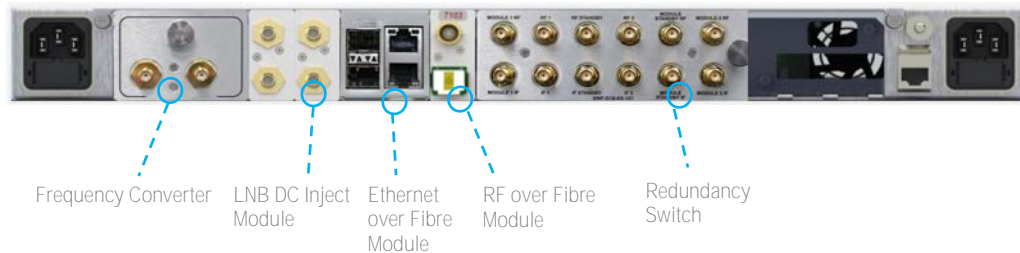
Environmental		
Operating temperature	<b>0 to 45°C</b>	
Location	Indoor use only	
Storage temperature	<b>-20°C to +75°C Not Powered</b>	
Humidity	20% - 90% non-condensing Relative Humidity	
Altitude	Operational	10,000 ft AMSL (Above Mean Sea Level)
	Storage	30,000 ft AMSL (Above Mean Sea Level)

Internal 10MHz reference and distribution module for 1U Genus chassis. The integrated 10MHz card has full control and monitoring via the parent chassis HMI or RJ45. The 10MHz reference source is switchable between this on-board ovenised 10MHz oscillator or the customer supplied external reference, connected to slot 17 EXT input module (if fitted). See separate datasheet for external 10MHz reference source inject card options.

Internal 10MHz —High Stability Ovenised Oscillator		
Frequency Setting	10±0.000001 MHz	
Output Type	Sinewave	
Output Power Range	-10dBm to +10dBm	±2dBm
Output Power Steps	1dB ±0.5	
Harmonic Rejection	2nd	>40dBc
	3rd	>50dBc
	4th	>60dBc
	5th	>60dBc
	At 0dBm power out.	
SSB Phase Noise dBc/Hz	0dBm 10MHz src	
10 Hz	<-124	Typical
100 Hz	<-143	
1000 Hz	<-147	
10 000 Hz	<-149	
100 000 Hz	<-152	
Frequency Stability:	<i>Over operating temperature</i> <i>Short-term (per second)</i> <i>Load change(±5%)</i> <i>Power supply variations(±5%)</i>	
	$< \pm 5 \times 10^{-9}$ $< 5 \times 10^{-12}$ $< \pm 5 \times 10^{-10}$ $< \pm 2 \times 10^{-8}$	
Frequency Aging	Per Day Per Year	±5 x 10 <sup>-10</sup> ±5 x 10 <sup>-8</sup>
Alarms	10MHz source RF power level. Card operational status.	User settable auto switchover for reference source (Int/Ext)
Hot-Swap	Field replaceable by user.	

Example of multiple module configuration

For modules technical specifications, refer to product specific datasheet



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 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

New technologies  
in RF distribution

## Model Number: GNS-106-1U

# Genus 1U Chassis

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The RF modules are field-serviceable and can be inserted whilst the shelf is in service, giving excellent levels of flexibility and resilience. With additional reliability from dual redundant hot-swap power supplies & field serviceable RF modules, HMI, CPU and optional user replaceable internal and external 10MHz reference source.

Typical applications:

- Teleports, ground stations, maritime high resilience applications and unmanned sites.
- High resilience RF distribution where single points of failure can be minimised.
- Redundancy applications for remote satellite teleports.
- V/HTS gateways
- Signal distribution – Amplifiers, BUC/LNB Power Supply's, Frequency Converters, Matrices, RF over Fibre, Redundancy Switches, Test Loop Translators are available.



Compact & flexible 1U chassis holding up to 17 RF modules, which can be mixed.



Local control & monitoring via front panel capacitive HMI touchscreen.



10MHz reference source Optional user replaceable internal and external 10MHz reference & distribution source. (refer to separate datasheet)



Remote control & monitoring via RJ45 Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMPv3 & Web Browser Interface



Secure Communications with SNMPv3, HTTPS



Flexible Signal Distribution Frequency converters, Redundancy Switches (N+1), RF Over Fibre, Matrices and Power Supply Modules are available.



Resilience from dual redundant hot-swap power supplies & field serviceable RF modules, HMI & CPU



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### Technical specifications and operating parameters

General Specifications	
Capacity	Up to 17 RF modules Note: Actual number dependent upon module type fitted
Dimensions	<b>1U high x 550mm deep x 19" wide</b>
Weight	<10 kg
Colour	RAL9003 White (Semi-Matte)
AC Power	85-264V AC (50/60Hz)
AC Consumption	150W Max. consumption at steady state
PSU	Dual redundant & alarmed, Diode OR, Hot-swap
RF Modules	Single, field replaceable

Control & Monitoring	
Local Control	HMI, capacitive touchscreen
Remote Control & Monitoring	Ethernet via RJ45, 10BaseT/100BaseTx ETL TCP/IP protocol SNMPv3 & HTTPS Built-in Web Server

Environmental		
Operating temperature	0 to 45°C	
Location	Indoor use only	
Storage temperature	-20°C to +75°C Not Powered	
Humidity	20% - 90% non-condensing Relative Humidity	
Altitude	Operational	10,000 ft AMSL (Above Mean Sea Level)
	Storage	30,000 ft AMSL (Above Mean Sea Level)

Reliability		
MTRR	20 minutes 15 minutes to retrieve spare part and 5 mins to replace. Applies to LRUs only and assumed in house stock.	
MTBF	Chassis	>250,000
	CPU	>250,000
Field serviceable components	RF modules, CPU & HMI. [Optional] internal & external 10MHz reference source.	
Hot-swap components	Dual redundant power supplies	

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.

A sample of available RF modules						
Amplifier	BUC/LNB Power Supply	Frequency Converter	Matrices	Redundancy Switch	RF Over Fibre	Test Loop Translator (TLT)

Custom RF modules may be available - If you have a requirement which isn't listed in the RF module options table please contact us.

### Example of multiple module configuration

For modules technical specifications, refer to product specific datasheet

