GENUS Outdoor Unit

With Internal 100 MHz reference source.

The GENUS outdoor unit (ODU) 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 space requirements.

The ODU chassis houses up to 19 RF modules including Amplifiers, BUC/LNB Power Supply's, Frequency Converters, Matrices, RF over Fibre, Redundancy Switches and Test Loop Translators, which can be mixed. 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 RF modules, CPU and user replaceable internal and external 100MHz reference source & HMI.

Available with the additional option of air-conditioning units for higher operating temperature environments. (Model GNS-381-ODU-A) and with heating for lower temperature operation (Model GNS-381-ODU-H). See Air Conditioning/Heating Model Numbers

Compact & flexible
ODU chassis holding up to 19 RF modules, which can be mixed.

100MHz reference source
User replaceable internal and external 100MHz reference & distribution source.

Secure Communications
with SNMPv3, HTTPS

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

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

Resilience
from dual redundant hot-swap power supplies & field serviceable RF modules & CPU. Optional Air Conditioning units for higher operating temperature. Optional hot swap HMI

General Specifications	
Capacity	Up to 19 RF modules Note: Actual number dependent upon module type fitted. (Can accommodate FALCON 4-slot modules in 2+1 configuration, please enquire if required).
Dimensions	500mm high x 500mm wide x 300mm (TBC for AC option) deep Please confirm size requirements with ETL prior to order
Weight	<18 kg (TBC)
Colour	RAL9003 White (Semi-Matte)
AC Power	100-240 VAC (50/60Hz) 'A' aircon option is 220-240 VAC only 'A1' aircon option is 100-120 VAC only
AC Consumption	TBC
PSU	Dual redundant & alarmed, Diode OR, Hot-swap
RF Modules	Single, field replaceable & hot-swap
Heat Load	<145W, 495 BTU/Hour (for GNS-301-ODU-A)
Tech Spec Version	1.0

Reliability		
MTTR		15 minutes to replace. Assumes spares at hand. Applies to LRUs only and assumed in house stock.
MTBF	Chassis	> 250 000
	CPU	> 250 000
Hot-swap / Field-serviceable Components		Dual redundant power supplies, RF modules, CPU, internal 10MHz reference source & HMI (if fitted)

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

Environmental		
Operating temperature		-20°C to 45°C
		-40°C to +65°C with optional Air-Conditioning units -40°C requires optional heat pad Please see Air Conditioning/Heating Model Numbers for options
Storage temperature		Outdoor or Indoor use IP65 AC unit reduces IP rating to IP54
Location		-40°C to +80°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)

Air Conditioning/Heating Model Numbers			
Model Number	Option	Operating Temperature	Comments
GNS-381-ODU	ODU no Air-conditioning or heater	-20˚C to +45˚C	-
GNS-381-ODU-H	ODU fitted with Heater	-40˚C to +45˚C	-
GNS-381-ODU-A	ODU fitted with Air Conditioning	-20˚C to +65˚C	Max air ambient 55˚C, spot temperature up to 65˚C
GNS-381-ODU-AH	ODU fitted with Air Conditioning and Heater	-40˚C to +65˚C	

RF Module Options					
Amplifier	BUC/LNB Power Supply	Frequency Converter	Matrices	Redundancy Switch	RF Over Fibre	Test Loop Translator (TLT)

Internal 100MHz reference and distribution module for ODU Genus chassis

The integrated 100MHz card has full control and monitoring via the parent chassis HMI or RJ45. The 100MHz reference source is switchable between this on-board ovenised 100MHz oscillator or the customer supplied external reference, connected to the EXT input connector.

Internal 100MHz - High Stability Ovenised Oscillator		
Frequency Setting	100±0.003 ppm	
Output Type	Sinewave	
Output Power	100 MHz: +2 dBm 10 MHz: +5 dBm	Typical (10MHz refernce output only available on slot-16. 100MHz available on any slot.)
Harmonic Rejection 2nd 3rd 4th 5th	>45 dBc >60 dBc >60 dBc >60 dBc	
SSB Phase Noise (typical) 10 Hz 100 Hz 1000 Hz 10 000 Hz 100 000 Hz 1 000 000 Hz	<-95 dBc/Hz <-120 dBc/Hz <-130 dBc/Hz <-140 dBc/Hz <-150 dBc/Hz <-155 dBc/Hz	
Frequency Stability: Over operating temperature Load change (±5%) Power supply variations (±5%)	$<\pm5 \times 10^{-9}$ $< \pm5 \times 10^{-10}$ $< \pm2 \times 10^{-8}$	
Frequency Aging (per year)	$\pm5 \times 10^{-8}$	
Alarms	100 MHz source RF power level. Card operational status	User settable auto switchover for reference source (Int/Ext)
Hot-Swap	Field replaceable by user.	

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.