VGU010

10-Channel, Modular, Variable/ Fixed Gain Unit

The **VGU010** system provides fixed gain &/ or attenuation control of IF, L-Band & SHF based signals, which can be used for balancing during commissioning to overcome differences in cross-site cable losses, as well as providing a useful facility for earth station operators to adjust the gain of uplink/ downlink chains remotely. SHF units can be used for coverage and capacity layer testing for 5G networks.

The **VGU010** is a multi-channel variable gain unit which can accommodate up to 10off **MVG00x** variable gain/ attenuation channels or **MFG00x** fixed gain channels, each of which are modular, 'hot-swappable' and can be inserted/ replaced in the **VGU010** unit from the rear without the need to remove power or disturb the other channels in any way.

The **MVG00x/ MFG00x** modules are available for use at either IF (70MHz ±18MHz/ 140MHz ±36MHz), L-Band (950-2150MHz) & SHF (for example 3.4-3.8GHz for 5G networks) and can be positioned in either the uplink or downlink chain. Each module houses a single IF, L-Band or SHF channel and can be fitted with fail-safe switching option.

The **VGU010** chassis is mains powered with dual (redundant), modular, hot-swappable power supplies, as standard.

Peak Features

- Flexible; modular, 'hot-swappable', expandable solution
- Active & passive slope compensation options
- Full remote control of **MVG00x** signal variable attenuation, 0-30dB range with fine 0.1dB adjustment control
- Full alarm monitoring
- Ability to support integral passive splitter/ combiner modules
- Redundant power supplies with dual mains input

VGU010 chassis – Typical Specification

Number of channels 1 to 10 (each MVG00x/ MFG00x denotes a single channel)

MVG00x – Variable Attenuation Module

Typical RF Performance

MVG001; 50-200MHz
MVG002; 950-2150MHz
MVG005; 3.4-3.8GHz
MVG006; 3.4-4.2GHz
MVG007; 10.7-12.75GHz

Connector type	SMA (f), 50Ohm
DC & 10MHz pass (Option 4)	Allows DC & 10MHz signals on the L-Band input to be passed through to the output
1 dB GCP	Input 0dBm, output +1dBm
Return loss*	14dB nom (input and output)
Insertion loss*	1dB nom at min attenuation
Option 6a;	Gain of 15dB nom, at min attenuation
Option 6b;	Gain of 27dB nom, at min attenuation

Note: For other gain options please contact the factory

Attenuation control	0-30dB, stepped 0.1dB
Gain stability	±0.5dB from 0 to 40^{0}C ±0.1dB per week (constant temp)
Gain flatness*	±1.5dB (MVG002 & 5 over full band) ±0.5dB (across any 36MHz in band) ±0.5dB over IF band (MVG001)
Bypass (Option 5)	Fail-safe switching to external user selectable pad
Bypass connection	SMA (f), 50Ohm (2 connections per channel)
Bypass insertion loss	1dB (plus external pad fixed attenuation value)

* The addition of options 4, 5 & 6 may modify the performance (for details please contact the factory).

MFG00x – Fixed Gain Module

Typical RF Performance

Note: Performance as above, unless stated below;

MFG001; 50-200MHz
MFG002; 950-1450MHz
MFG003; 950-1750MHz
MFG004; 950-2150MHz
MFG005; 3.4-3.8GHz
MFG006; 3.4-4.2GHz
MFG007; 10.7-12.75GHz

RF input power	-10dBm max (no load, no damage)
TOIP	+25dBm
1dB output GCP	+13dBm
Return loss*	16dB nom (input and output)
Gain*	20dB nom
Option 7a;	30dB nom
Option 7b;	40dB nom

Note: For other gain options please contact the factory

Gain flatness*	±0.25dB (bandwidths ≤500MHz) ±0.5dB (MFG003) ±1dB (MFG004 & 5)

* The addition of options 4 & 5 may modify the performance (for details please contact the factory).

Other

L-Band Linear Slope compensation (Option 15, 15b)

Compensates for internal circuitry & external primarily across-site cables.

Note: Unit options chosen will determine 'surplus' available for external compensation (for details contact factory).

Frequency 950-2150MHz

Option 15; Passive, fixed 5dB nom., positive slope
Option 15b; Active, user settable 0 to 8dB nom., positive slope (reduces to 0 to 6dB nom., over 950-1750MHz & 0 to 5dB, over 950-1450MHz)

Note: Option 15b includes variable attenuation facility 25dB range, 0.1dB step.

Mechanical

Width	19", standard rack mount
Height	2U (3.5")
Depth	534mm (21"), plus connectors
Construction	Aluminium chassis
Weight	
VGU010	Approx. 4kgs (9lbs)
MVG/ MFG	Approx. 0.5kg (1lb)
MPS001	Approx. 0.5kg (1lb)

Environmental

Operating temp	-10^{0}C to +50^{0}C
EMC	EN55022 part B & EN50082-1
Safety	EN60950

MPS001 power supply (modular, dual, redundant)

Note: 2off supplied as standard with the VGU010 unit, spare modules available

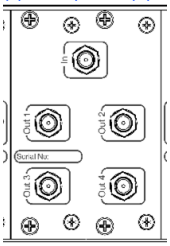
Input voltage	90-264VAC
Input frequency	47-63Hz
Power	100 Watts max. (10 channels installed)

Control System Interface

Remote control	Ethernet
Alarms	PSU 1 & 2 failure Channel alarms (1-10)
Connector	MDR, 50-way

Splitter/ Combiner Modules (MSC004, MSC008)

Chassis can support 4-way (MSC004) & 8-way (MSC008) passive splitter/ combiner modules (option dependent), please consult factory for details and availability.



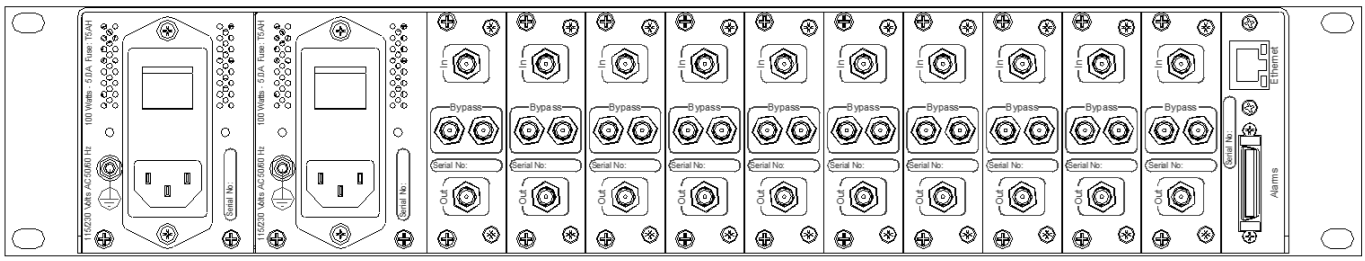
Options

4) DC & 10MHz pass-through
5) Fail safe by-pass switching
5b) Fail safe by-pass attenuator links for option 5
6a) 15dB nominal MVG00x gain (at minimum attenuation)
6b) 27dB nominal MVG00x gain (at minimum attenuation)
7a) 30dB nominal MFG00x gain
7b) 40dB nominal MFG00x gain
15) 5dB passive, fixed, slope compensation (L-Band only)
15b) Active, user settable, slope compensation (L-Band only), including variable gain facility

Notes: The addition of options can modify the typical specification, for details please consult the factory

PEAK COMMUNICATIONS

Rear Panel View *(shown with 10 channels fitted)*



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