Unique Broadband Systems

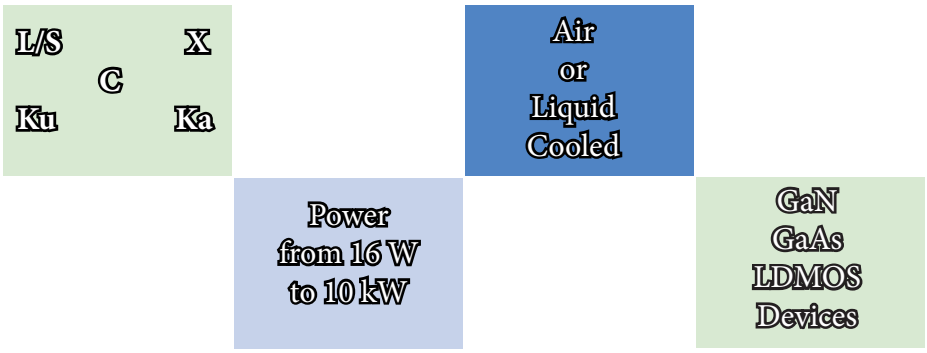
a DOL Technologies Inc. Company

UniMatrix

Ku-Band Solid State Power Amplifier System

1.4-4.5kW

Indoor



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UniMatrix Ku Band SSPA System

UniMatrix Ku Band 2.5kW SSPA System

with 1+1 combining and and 1:1 reservation

Our new UniMatrix 1.4 - 4.5 kW Ku-Band modular system is designed using Gallium Nitride (GaN) RF device technology to deliver outstanding performance with improved efficiency, boosted reliability, and ease of maintenance.

The system employes passive combining to avoid interruption in RF output power levels and can be controlled and monitored using either RS-485 or Ethernet.

It is easily customizable between 4, 8 and 16 modules and can be configured as 1+1 (combined) or 1:1 (redundancy) system. This gives you the possibility to upgrade output power capabilities if requirements increase.

* Hot Swappable SSPA Modules
* Output power up to 4.5 kW
* Automatic gain control in case of single module failure

Available GaN module power levels

SSPA Module Power	4-Module System	8-Module System	16-Module System
400W	1.4KW (61.5 dBm)	2.5KW (64 dBm)	4.5kW (66.5 dBm)

Parameter	Value
RF parameters	
Input frequency band	950 MHz – 1700 MHz
Output frequency band	13750 MHz – 14500 MHz
Output power in redundancy mode 1:1	61.5 dBm (1400 W)
Output power in combining mode 1+1	64 dBm (2500 W)
Input power	0 dBm, max
Power gain	65 dBm at minimum attenuator value
Gain flatness	±2.5 dB, max, in the whole range ±1.0 dB, max, in any band 40 MHz of a specified frequency range
Gain variation vs. temperature 0° to +50°	± 2.5 dB, max
Gain adjustment	30 dB, min. with the step 0.5 dB
External reference frequency	10 MHz, sinewave

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Parameter	Value
Phase noise of external source	-135 dBc/Hz, max, with offset 100 Hz -140 dBc/Hz, max, with offset 1 kHz -143 dBc/Hz, max, with offset 10 kHz -143 dBc/Hz, max, with offset 100 kHz
Phase noise of output signal	- 60 dBc/Hz, max, with offset 100 Hz - 70 dBc/Hz, max, with offset 1 KHz - 80 dBc/Hz, max, with offset 10 KHz - 90 dBc/Hz, max, with offset 100 KHz
Third order Intermodulation (IMD3)	- 33 dBc relative to carrier at 54dBm output power in combined mode and 51dBm in redundancy mode for the two carrier signals with 5 MHz separation
Spurious harmonics	- 55 dBc, max, relative to carrier (in the whole gain adjustment range), max.
Spurious radiation	- 50 dBc, max., relative to carrier in all operation band
Output reflection level to enable protection	- 10 dB, max.
Input RF signal monitoring port	- 10 dB, max., relative to carrier, with indication on the display in Watts
Output RF signal monitoring port (test load)	- 60 dB, relative to carrier, with calibration chart and display indication in Watts
Input signal source VSWR	1.5:1, max.
Load VSWR	1.5:1, max.
Group delay	1 ns at the max signal in the 40 MHz band
Residual radiation average power at 1m distance from the test load (with maximum radiation power on the load)	- 57.38 dBm or less
Control and Indication	
AC power on/off (power supply units indication)	Switch (mechanical)
Power interlock	Menu selection on/off RF power
Gain adjustment range	Menu selection: 30 dB, with 0.5 dB step
Overheat protection	+80 ° C to +85° C at the hottest spot
Output RF power	Output power display indication in W
Amplifier temperature, hottest spot	Centigrade ° C temperature displayed

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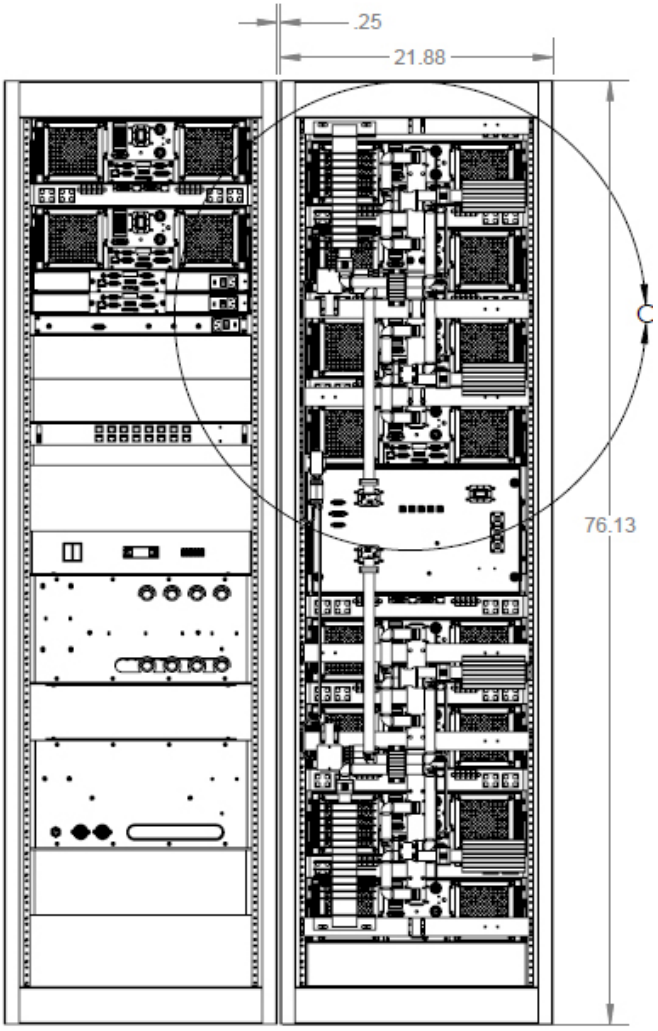
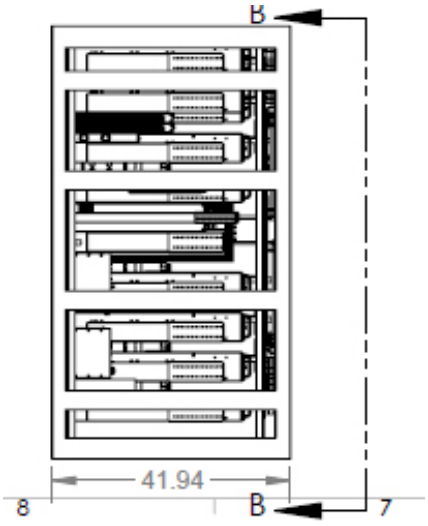
Parameter	Value
Power Supply	
Input	190 to 260 V, 50 Hz ±10%
Power factor (cos φ)	0.98
Power consumption, max	25 KW, max.
Cooling	Forced air ventilation, and forced liquid cooling optional
Mechanical Parameters	
Outlay	2 (two) 19´´ racks 42U with power amplifiers, 1 (one) waveguide assy with redundancy and combining system
Connectors:	
RF input	N –type (female)
RF output	WR75G
Power supply	220/380V five-wire cable with 6 AWG cross section (three phases 220V, neutral and ground). Cable length to be confirmed
Analog interface:	
For service maintenance of amplifier modules;	DB-15 (female), front panel
For service maintenance of 1.2 kW power amplifier	DB-15 (female), rear panel of the microcontroller
RS-485 interface	DB-9 (female), rear panel

Outline Drawings





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