

Preliminary

GaN Microwave Generator

RIK0960K-50TDG



Product Features

- 900 ~ 930MHz
- High Output power : 60kW(CW) Peak Power
- Using GaN on SiC HEMT
- 60% System Efficiency
- High reliability & stability, long-run operation
- High frequency-stability with PLL technology
- Digital Adjustability of Power, Frequency, Phase

Applications

- Building block for high-power systems
- Plasma generation
- Industrial Heating and Drying
- Microwave CVD
- Microwave sintering
- Microwave chemistry
- Materials processing
- Study of biological phenomena



Description

The RIK0960K-50TDG is a 60kW, GaN solid-state microwave generator designed ideally for microwave heating and plasma generation applications. The RIK0960K-50TDG is a combined microwave generator providing continuous wave (CW) and or pulse output power adjustable from 1,000W to 60,000W at frequencies ranging between 900MHz and 930MHz. The RIK0960K-50TDG is a turn-key microwave generator solution that comes pre-equipped with thirty-two GaN solid-state power amplifiers, a 162kW 480VAC power supply unit, a main control module (PLL Synthesizer), and a Window-based GUI software.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	Adjustable Range	MHz	900		930	F _o
	Step Size	kHz	500			F _{step}
Output Power	Adjustable Range	kW	1		60	P _o
	Step Size	kW	0.1			P _{step}
Operating Mode		CW and or Pulse				
Power Spectrum Bandwidth**		kHz	-	-	500	S _b
Frequency Accuracy & Stability		ppm	-2.5	-	2.5	F _s
Efficiency (DC to RF)		%	-	-	60	Eff
Operating Voltage	PSU	V	432	-	525	VAC
	SSPA Head		-	50	-	VDC
Phase Shift	Operating Range	Deg	0	-	360	-
	Step Size	Deg	-	5.6	-	-
Pulse Mode	Duty Repetition Frequency	kHz	0.01	-	50	-
	Pulse Length	ms	0.02	-	100	-
	Pulse Width	us	20	-	-	-

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Generator Alarm & Protection Features



PARAMETER	State	CONDITION
Output Power	Alarm	Output Power > 60kW
Over-Temperature	Alarm	System Temperature > 60 C°
Reflected Power	Alarm	Reflected Power > 12kW
PLL Unlock ⁽¹⁾	Disabled	
Over-Temperature	Disabled	System Temperature > 55 C°
Reflected Power	Disabled	Reflected Power > 15kW
Water Temp	Disabled	System Temperature > 28 C°
Water Flow	Disabled	System Flow < 80L/min

***Remarks**

(1) A phase-locked loop (PLL) is a control system that generates an output signal whose phase is related to the phase of the input signal. The PLL is equipped with a voltage-driven oscillator that constantly adjusts to match the frequency of the input signal.

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (W x D x H)	mm	1556 x 1006 x 2046
Weight	Kg	1000
Microwave Output Port	-	WR975
DC & GND	-	3P4W Lug Terminal , GND
I/O Connector		USB, D-Sub 9-Pin, Ethernet
Cooling Requirements	-	Water Cooling Rate 100L/Min, 5Bar
		Cooling Water Inlet Temperature 20 °C~25°C (typ.)
		Relative humidity below dew point (non-condensing)
		* De-ionized water shall be used to prevent system damage
Fluid Inlet/Outlet Size	Inch	1” Tapered Pipe Thread

Remarks: Dimensions and Connectors may be subject to change.

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Case Temperature ⁽¹⁾	°C	15~50
Environmental/Storage Temperature	°C	10 ~ 40

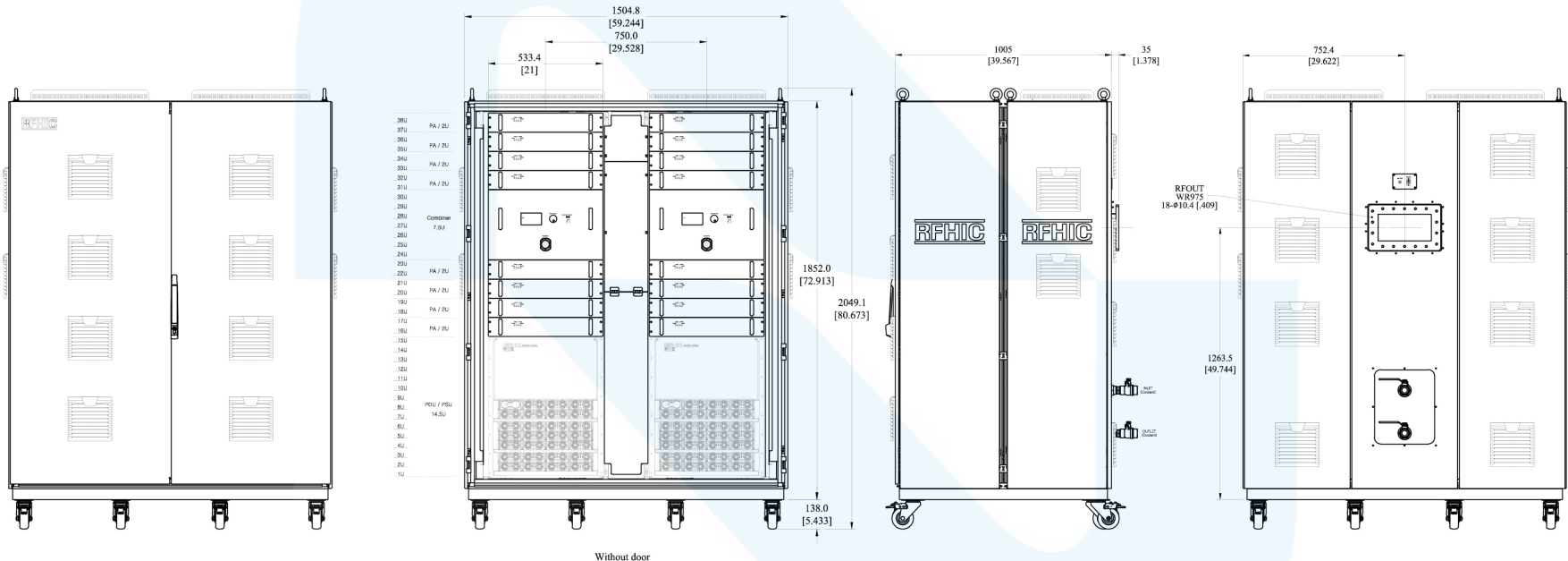
***Remarks**

(1) Operating case temperature is the temperature detected at the PA temp sensor.

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Generator Dimension



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GaN SSPA Microwave Generator
RIK0960K-50TDG



Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIK0960K-50TDG	April, 2023	0.1	Initial release of datasheet	Preliminary



Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.

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