GaN Microwave Generator
RIU093K0-40TG

Product Features

- 900 ~ 930MHz
- High Output power : 3kW(CW) Peak Power
- Using GaN on SiC HEMT
- 65% System Efficiency @ CW 3kW
- High reliability & stability, long-run operation
- High frequency-stability with PLL technology
- Accurate adjustment function on output power, phase, frequency
- Excellent Frequency Spectrum at Low Power

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
- Food sterilization / pasteurization

Description

RIU093K0-40TG is a 3kW, GaN solid-state microwave generator designed ideally for microwave heating and plasma generation applications. The RIU093K0-40TG provides continuous wave (CW) and or pulse output power adjustable from 30W to 3000W at frequencies ranging between 900MHz and 930MHz. The RIU093K0-40TG is a remote-type microwave generator system with the SSPA head and power supply unit separately, providing greater system flexibility. The RIU093K0-40TG comes equipped with a 3kW SSPA head, 380VAC Power Supply Unit (PSU), a DC cable, a Window-based GUI, and a PLL Synthesizer/Control Module.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	Adjustable Range	MHz	900	-	930	Fo
	Step Size	kHz	500	-	-	
Output Power	Adjustable Range	kW	0.03	-	3	Po
	Step Size	kW	0.01	-	-	
Operating Mode		CW				
Frequency Accuracy & Stability		ppm	-2.5	-	2.5	Fs
Efficiency (DC to RF)		%	-		65	Eff
Phase Shift	Operating Range	Deg	0		180	
	Step Size	Deg	-	1.0	-	
Operating Voltage	PSU	V	304		456	VAC
	SSPA Head			50		VDC
Control Interface		RS-422				

Generator Alarm & Protection Features

PARAMETER	State	CONDITION
Forward Power	Alarm	Output Power > 3kW
Over-Temperature	Alarm	System Temperature > 50 C°
Reflected Power	Alarm	750W ~ 1.5 kW
PLL Unlock(1)	Disabled	System
Forward Power	Disabled	Output Power > 3.3kW
Over-Temperature	Disabled	System Temperature > 55 C°
Reflected Power	Disabled	Reflected Power > 1.5kW

***Remarks**
(1) PLL Unlock definition

SSPA Head Mechanical Specifications

PARAMETER	UNIT	VALUE	
Dimensions (W x D x H)	mm	399 x 252 x 470	
SSPA Head Weight	Kg	42	
Microwave Output Port	-	WR975	
DC & GND	-	Circular Connector 4pin (Female)	
I/O Connector		D-Sub 9-Pin	
Cooling Requirements	-	**Water Cooling Rate**	10L/Min, 5Bar
		Cooling Water Inlet Temperature	20 °C (typ.)
		Relative humidity below dew point (non-condensing)	
		* De-ionized water shall be used to prevent system damage Antifreeze water is recommended below 0°C environmental conditions	
Fluid Inlet/Outlet Size	Inch	Rc 1/4	

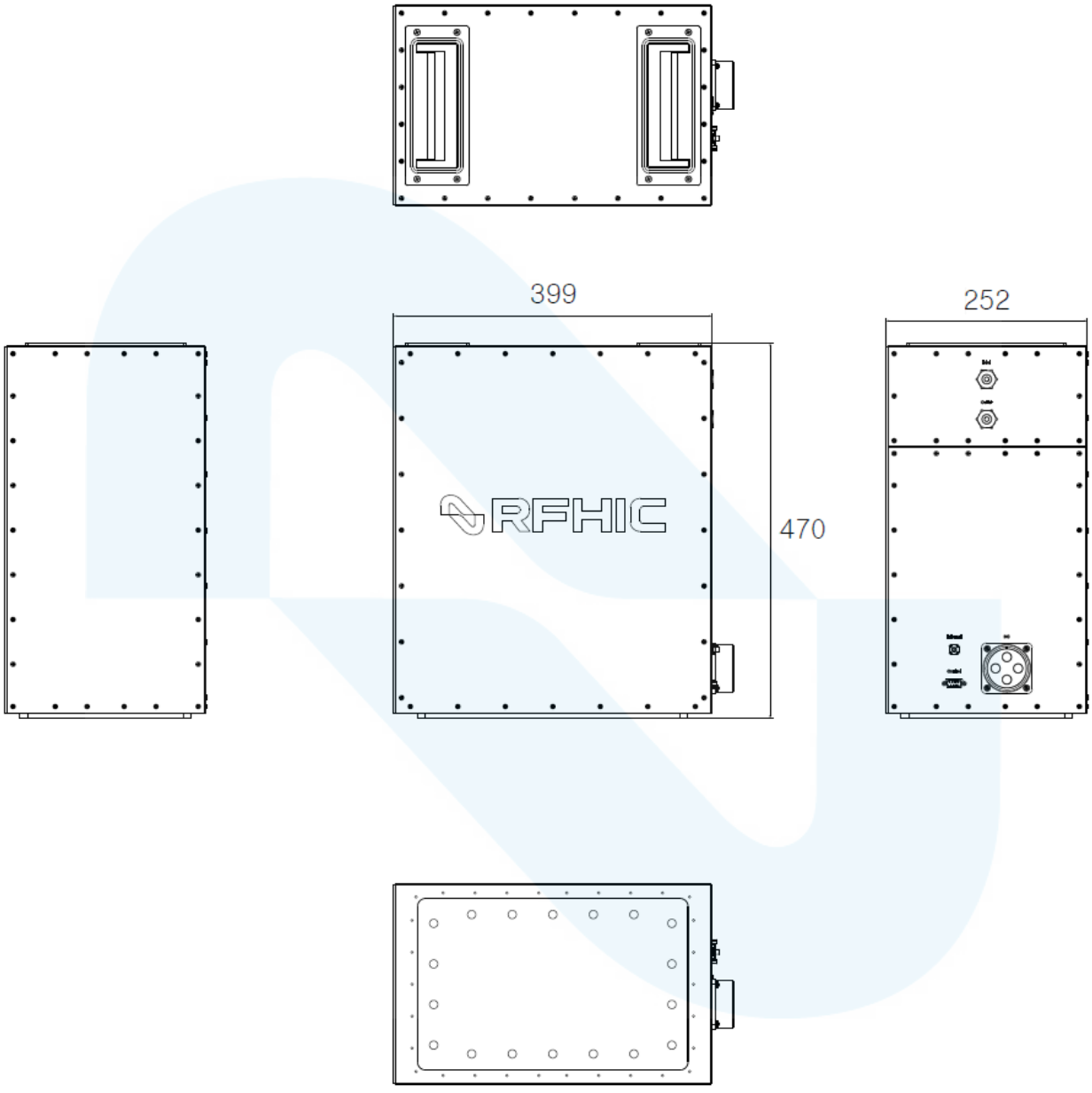
Remarks: Dimensions and Connectors may be subject to change.
*Product warranty applies ONLY to products operated within the normal and specified operations

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.

SSPA Head Appearance

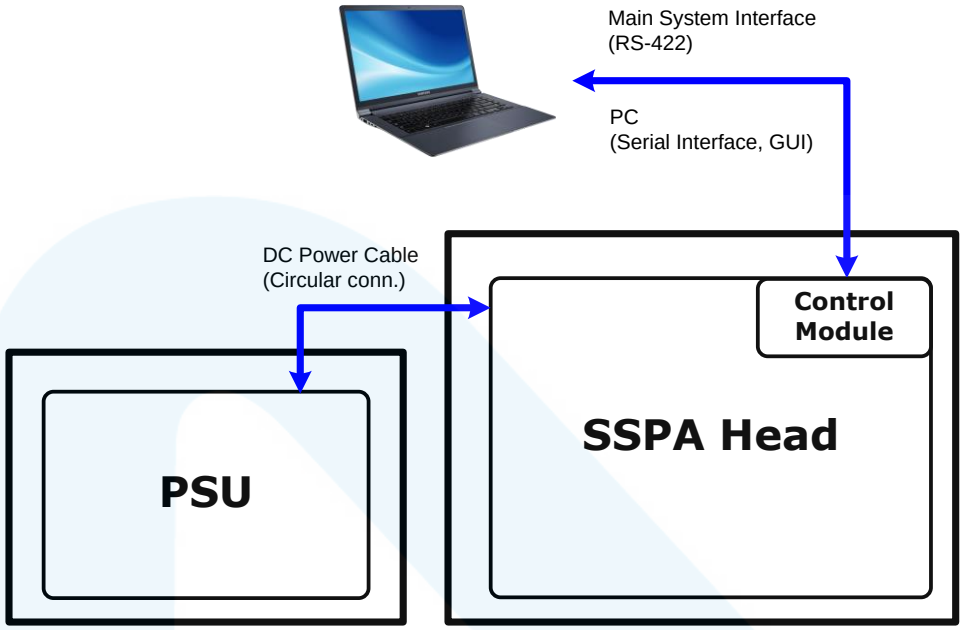


Power Supply Unit Specifications (SPD099K0-40T)

PARAMETER	UNIT	VALUE
Input Voltage	VAC	304 ~ 456
Frequency	Hz	45-66
Power Factor	%	98 ≥ Typ.
PSU Efficiency	%	96
Output Voltage	VDC	50
Output Current	A	180 max.
Weight	Kg	17
Dimensions (W x D x H)	mm	482 x 444.7 x 88.9
Cooling	-	Air Cooling

PSU Image

Microwave Generator Setup and Interface Concept



Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIU093K0-40TG	April, 2025	1.0	Initial release of datasheet	

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Certification

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

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