

Preliminary

GaN Microwave Generator

RIU003K0-20



Product Features

- Four individual channels, full digital control.
- Pulse synchronization
- Real-time power and impedance measurement
- Frequency tuning
- Wide power output range (2.5 to 10 kW)
- High VSWR capability
- Incorporated with a SMPS mode DC power supply
- Phase synchronization (CEX)
- Superior line sag immunity

Applications

- MW Heating and Drying
- Medical Equipment
- Semiconductor Equipment
- PVD, PECVD, Etch



Description

The RIU003K0-20 is a 2.5kW, 4-channel microwave generator that provides continuous wave (CW) and/or pulse output power, adjustable from 100W to 2500W at 27.12 MHz. Designed ideally for microwave heating and plasma generation applications, the RIU003K0-20 is a remote-type system with the SSPA head and power supply unit separated. It is the industry's most cost-effective solution, offering greater system flexibility. It delivers performance repeatability and reliability you can depend on.

Electrical Specifications

PARAMETER		UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	Adjustable Range	MHz	25.8	27.12	28.5	F _o
	Stability	%		0.05		
RF Output Power	Adjustable Range	W	100	-	2500	P _o
	Accuracy(50Ω)	W	± 1 W or ± 1% of set point, whichever is greater			
Operating Mode		C.W & Optional : Pulse (5Hz to 10kHz)				
Efficiency (DC to RF)		%	-	-	60	Eff
Operating Voltage	PSU (3 phase)	V	-	208	-	VAC
	SSPA Head		55	60	65	VDC
Rise / Fall Time	Rise Time	us	-	-	100	
	Fall Time	us	-	-	3	-
Set Power Delay		ms		-	10	-
Dimension		mm	446 x 172 x 631 (W x H x D) 4U			-
Weight		kg	-	-	60	
Coommunication		-	Optional –USB, D-net, RS-232/485 Optional :EtherCat : 1 x CAT5 RJ-45			-
Power Sag Condition		-	SEMI F47			-

Preliminary

GaN Microwave Generator

RIU003K0-20



Generator Alarm & Protection Features

PARAMETER	State	CONDITION
Output Power	GUI Alarm Shut Down	Output Power > 3kW
Drain Voltage	GUI Alarm	Verify Drain Voltage 65V
PLL Unlock ⁽¹⁾	GUI Alarm	-
Over-Temperature	GUI Alarm	System Temperature > 55° C
FWD Power	GUI Alarm, LCD Alarm	Reached Output Power Time < 1s (Output Power =Target Power ± 1%)
RVS Power	GUI Alarm, LCD Alarm	RVS Power > Output Power 10%

*Remarks

⁽¹⁾ A phase-locked loop (PLL) is an electronic circuit with a voltage-driven oscillator that constantly adjusts to match the frequency of an input signal. PLL is used to generate, stabilize, modulate, demodulate, filter, or recover a signal from various noises.

*Permanent damage may occur if any of these limits are exceeded. Electrical maximum ratings are not intended for continuous normal operation.

Generator Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions (W x D x H)	mm	446 x 172 x 631 (W x H x D) 4U
Weight	kg	60kg MAX.
Microwave Output Port	-	HN Female (3/4-20UNEF-2A)
INPUT Connector	-	Harting
Cooling Requirements	-	Water Cooling Rate 12L/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	3/8" Tapered Pipe Thread

Remarks: Dimensions and Connectors may be subject to change.

Environmental Specifications

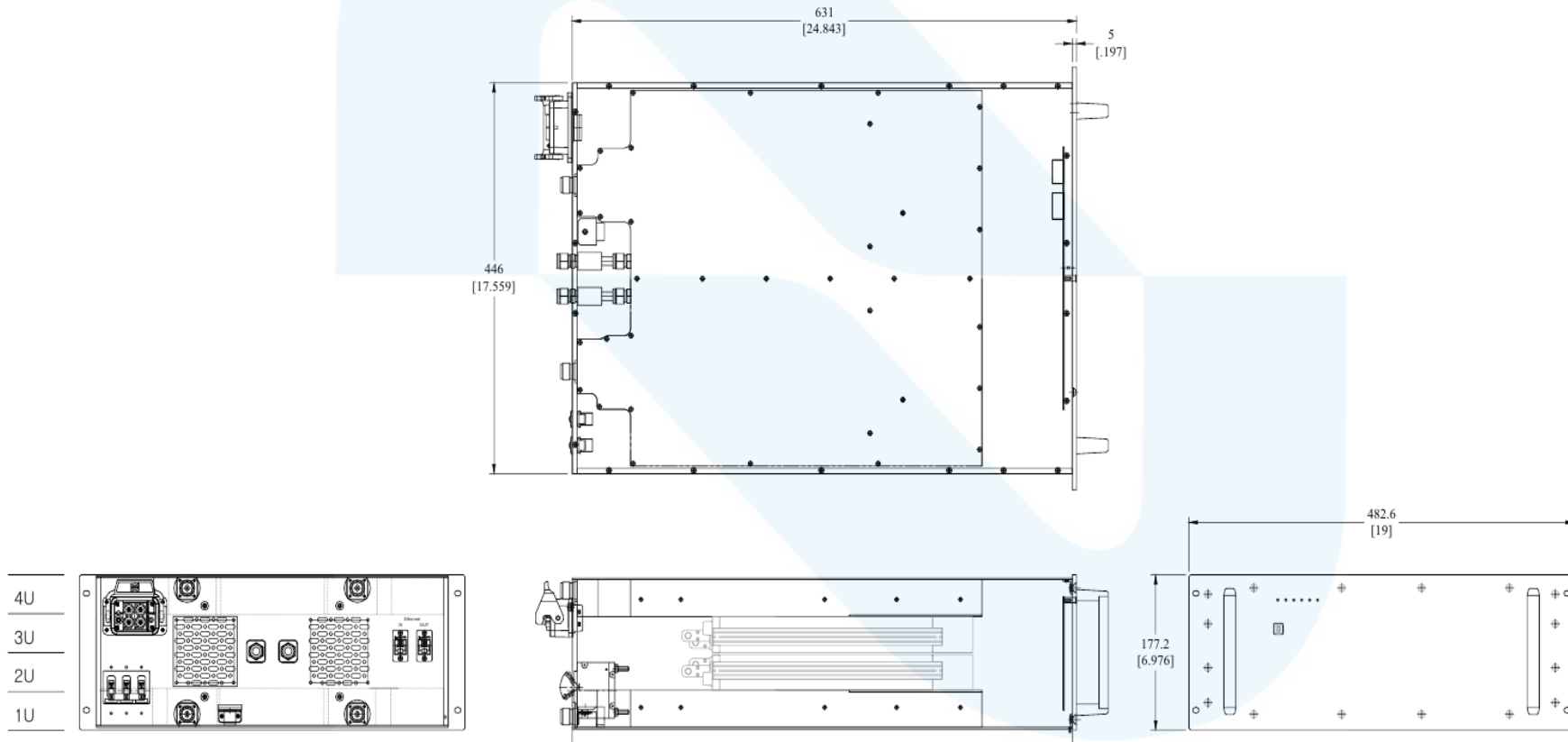
PARAMETER	UNIT	VALUE
Operating Case Temperature ⁽¹⁾	°C	15 ~ 50
Environmental/Storage Temperature	°C	10 ~ 40

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

Preliminary
GaN Microwave Generator
RIU003K0-20



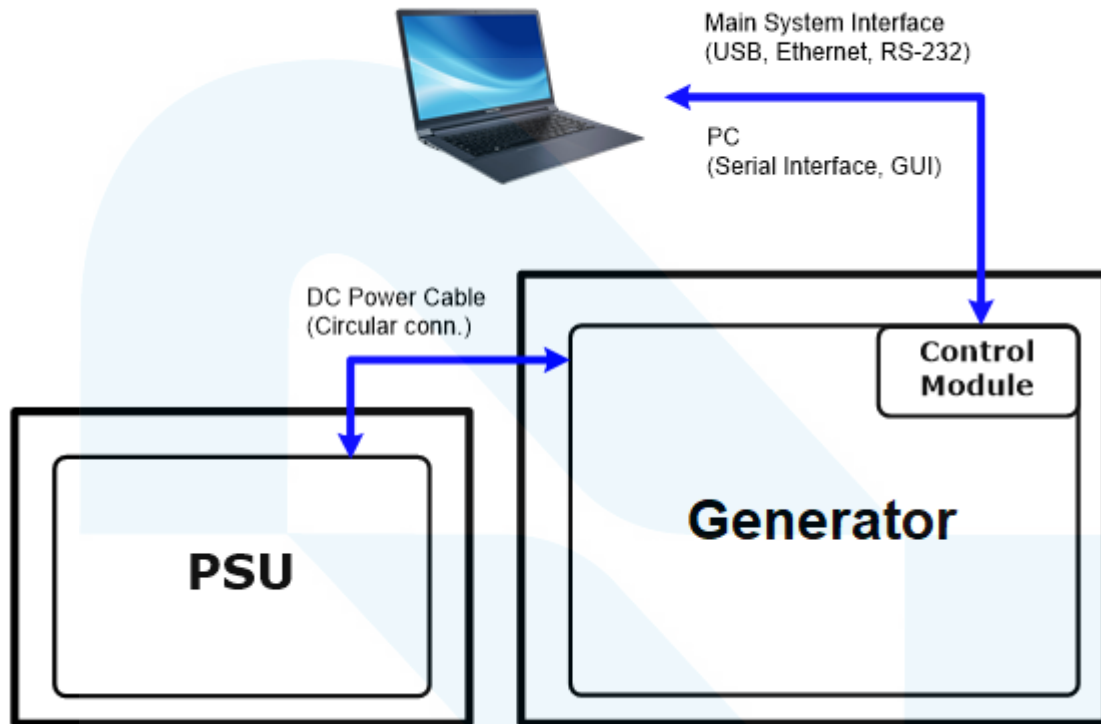
Generator Dimensions



Preliminary
GaN Microwave Generator
RIU003K0-20



Microwave Generator Setup and Interface Concept



Preliminary
GaN Microwave Generator
RIU003K0-20



Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RIU003K0-20	August, 2018	0.1	Initial release of datasheet	Preliminary
RIU003K0-20	April, 2020	0.2	Dimensions Revised, Exterior Features Revised	Preliminary
RIU003K0-20	October, 2021	0.3	Dimensions Revised, Exterior Features Revised	Preliminary
RIU003K0-20	August, 2022	0.4	Revision of Protection specifications, Addition of Cooling requirements, Environmental specifications	Preliminary
RIU003K0-20	November, 2023	0.5	GUI Revised	Preliminary



Certification

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

RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages. RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect, and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use. All sales inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US sales team through our website at <https://www.rfhicusa.com/>. For all other inquiries, please contact our international sales team through our website portal at <https://rfhic.com/contact/>.