

# Preliminary

## S-BAND 5kW Transmitter

### RRK20405K0-680



#### Product Features

- 5kW Pulsed Transmitter
- Frequency from 2 GHz to 4 GHz
- Using High-Efficiency GaN Transistor
- WRD200 Waveguide Output
- Water Cooling

#### Applications

- Radar
- EM Simulator
- High Power RF Application



#### Description

The RRK20405K0-680 is built with GaN-on-SiC transistors and is designed for high power radar applications. Operating at 2,000 MHz ~ 4,000 MHz, this solid-state transmitter allows upgrading the existing VED (Vacuum Electronic Device, such as Klystron, Magnetron, Travelling Wave Tube, and Cross Field Amplifier) based transmitter for radar platforms.

#### Electrical Specifications @ $V_{ac}=208V$ , $T_o=25^{\circ}C$ , 50 $\Omega$ Input System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	GHz	2.0	-	4.0	$f_o$
Operating Bandwidth	GHz	-	-	2	BW
Output Pulse Power	kW	5	-	-	$P_o$
Input Pulse Power	dBm	+14	-	+16	$P_i$
Power Gain	dB	-	52	-	$G_p$
Duty Cycle	%	-	-	15	DC
Pulse Width	us	0.05	-	120	PW
Spurious	dBc	-50	-	-	Spur
Harmonics 1 to N	dBc	-12	-	-	$H_N$
Output Power Overshoot	dB	-	-	1.2	$P_{os}$
Output Power Monitoring	dBc	-	50	-	$P_M$
VSWR	-	-	-	2.0 : 1	VSWR
Power Consumption@ 15%, Pout 5kW	kW	-	6	8	$P_c$
Operating Voltages	VAC	+208VAC $\pm$ 10V, 3Phase, 60Hz			AC
Protection & Warning Alarm (BIT)	-	RVS Power Shutdown		Output VSWR 3 : 1	
	-	Over Duty Cycle Shutdown		> 15 %	
	-	OverTemp Alarm & Shutdown		> 65 $^{\circ}C$	
	-	HPA Alarm(each)		Current / Temp.	
	-	Pre Drive Alarm(each)		Input power/ Current / Temp.	

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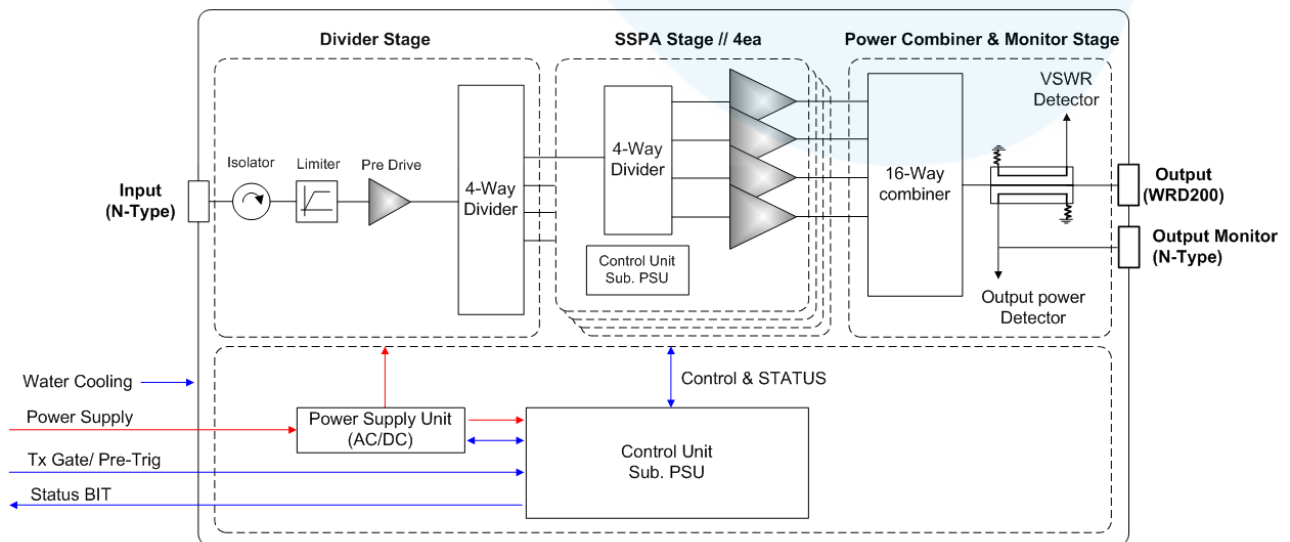
## Absolute Maximum Ratings

PARAMETER	UNIT	VALUE
Operating Flange Temperature	°F (°C)	+50 ~ +80°F (+10 ~ +26.7°C)
Storage Temperature	°F (°C)	+10 ~ +110°F (-12.2 ~ +43.3°C)

## Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions	-	19inch Rack Mount, 13 U 800 × 743 × 997 (W × H × D, mm), Height excluding wheels
Weight	lbs	610 lbs Maximum
RF Input Type	-	N-Type Female
RF Output Type	-	WRD200
RF Output Monitor Type	-	N-Type Female
I/O Connector	-	RJ-45
Gate Connector	-	D38999 Type
Power Connector	-	D38999 Type
Cooling	-	De-ionized Water Cooling
Flow Rate	l/min	15 ~ 25 l/min
Water Temp.	°C	15 ~ 20
Pressure	bar	5 bar Maximum

## Block Diagram

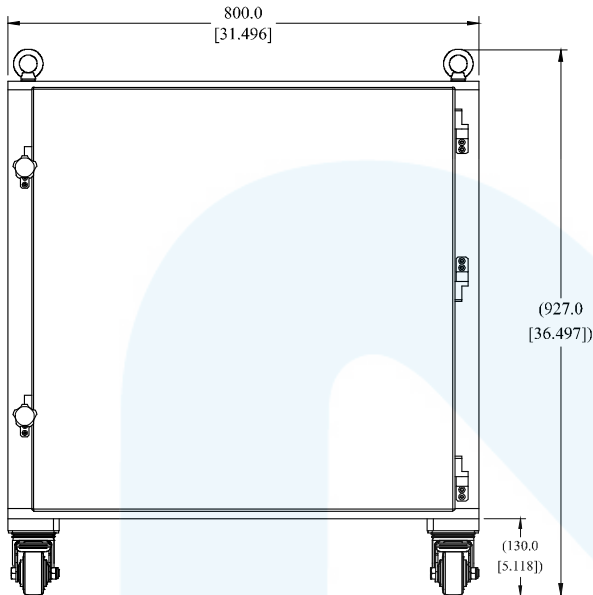


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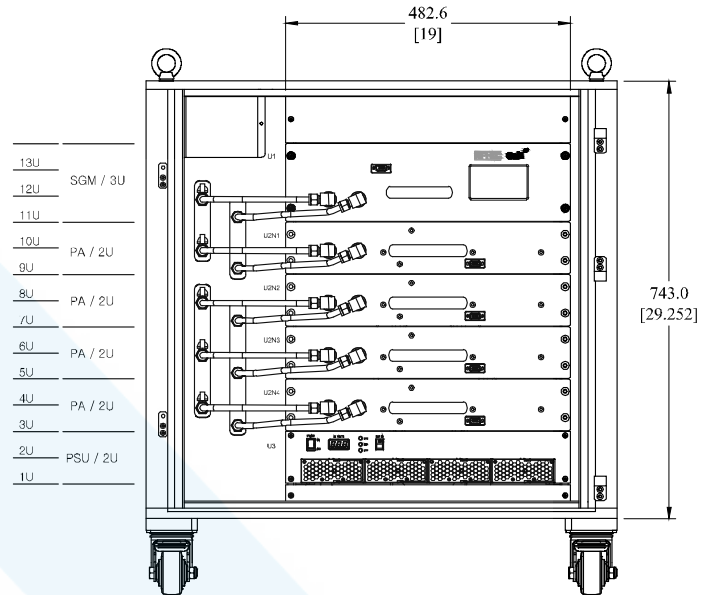


**Mechanical Drawing(TBC)**

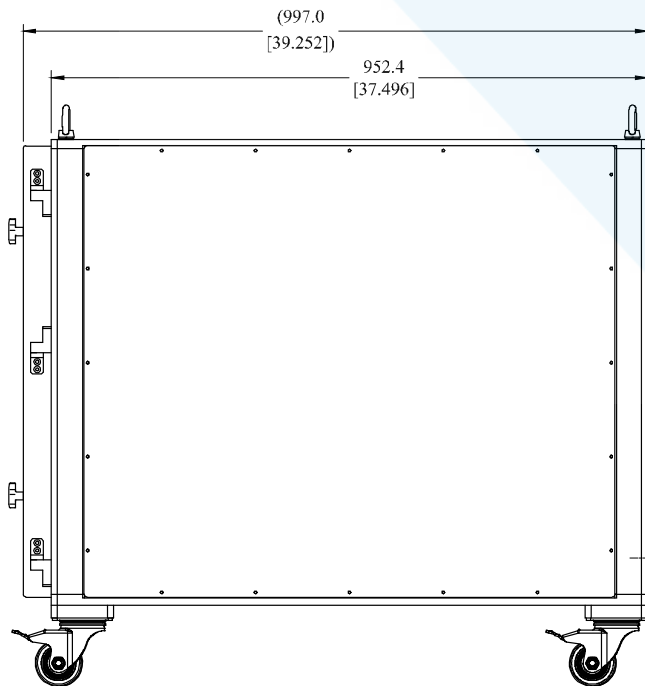
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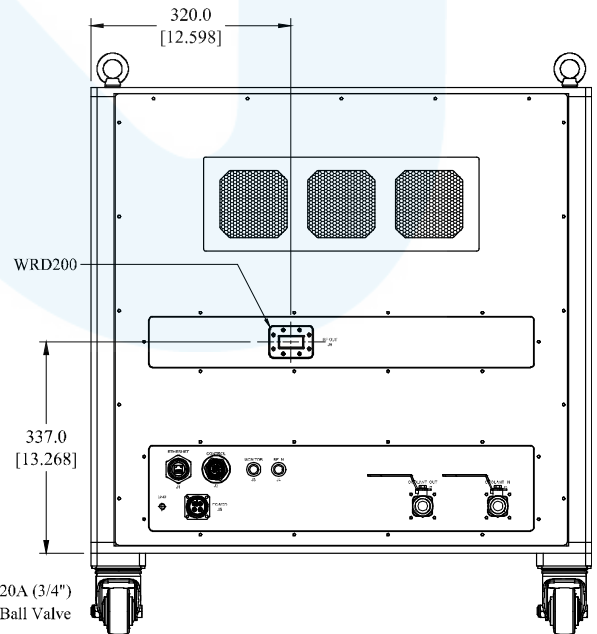
Front



Without Door View



Side



Rear

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## Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RRK20405K0-680	Feb. 2 <sup>nd</sup> . 2023	0.4	Modified spec.	Preliminary
RRK20405K0-680	Jun. 2 <sup>nd</sup> . 2022	0.3	Modified spec.	Preliminary
RRK20405K0-680	Jul. 2 <sup>nd</sup> . 2021	0.2	Modified spec.	Preliminary
RRK20405K0-680	Feb. 2 <sup>nd</sup> . 2021	0.1	Initial release	Preliminary



### Certification

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

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