

Preliminary

C-BAND 5kW Transmitter

RRK40805K0-680



Product Features

- 5kW Pulsed Transmitter
- Frequency from 4 GHz to 8 GHz
- Using High-Efficiency GaN Transistor
- WRD350 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 Ω Input System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	GHz	4.0	-	8.0	f_o
Operating Bandwidth	GHz	-	-	4	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	-	15	16	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		> 45 $^{\circ}C$	
	-	HPA Alarm(each)		Current / Temp.	
	-	Pre Drive Alarm(each)		Input power/ Current / Temp.	

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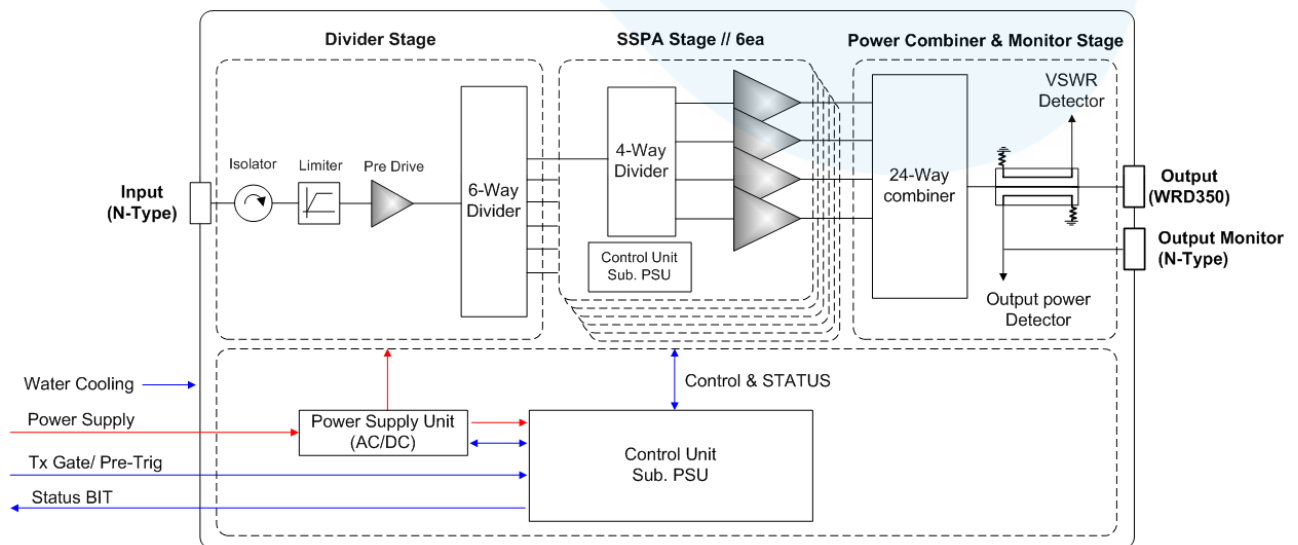
Absolute Maximum Ratings

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, 17 U 800 × 921 × 997 (W × H × D, mm), Height excluding wheels
Weight	lbs	730 lbs Maximum
RF Input Type	-	N-Type Female
RF Output Type	-	WRD350
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	35 ~ 40 l/min
Water Temp.	°C	10 ~ 15
Pressure	bar	5 bar Maximum

Block Diagram

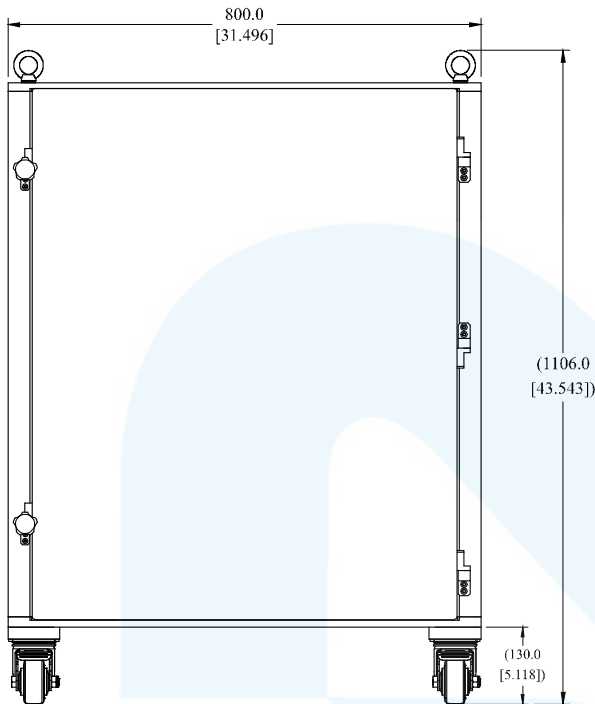


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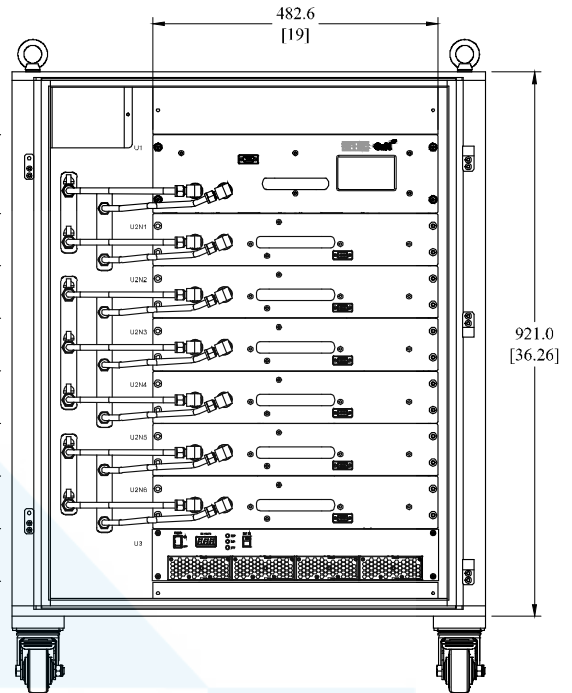
Mechanical Drawing(TBC)

unit: mm
[inch]

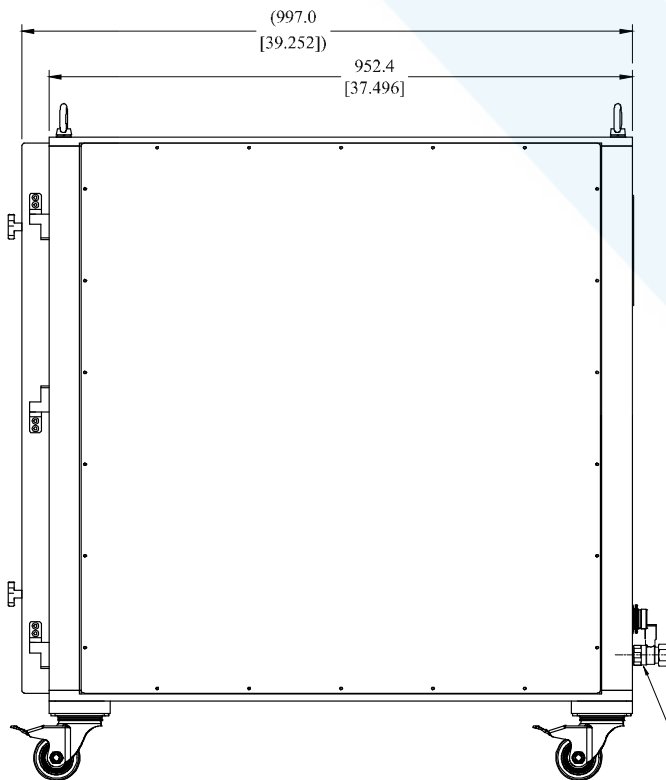


Front

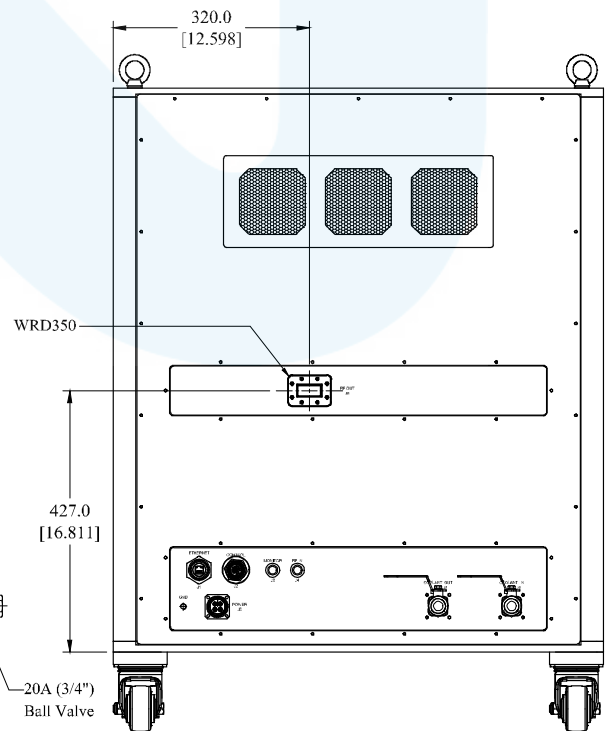
17U	
16U	SGM / 3U
15U	
14U	PA / 2U
13U	
12U	PA / 2U
11U	
10U	PA / 2U
9U	
8U	PA / 2U
7U	
6U	PA / 2U
5U	
4U	PA / 2U
3U	
2U	PSU / 2U
1U	



Without Door View



Side



Rear

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Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RRK40805K0-680	Feb. 2 nd , 2023	0.4	Modified spec.	Preliminary
RRK40805K0-680	Jun. 2 nd , 2022	0.3	Modified spec.	Preliminary
RRK40805K0-680	Jul. 2 nd , 2021	0.2	Modified spec.	Preliminary
RRK40805K0-680	Feb. 2 nd , 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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