

Preliminary
C-BAND 8.5kW Transmitter
RRK56578K5-790



Product Features

- 8.5kW Pulsed Transmitter
- Frequency from 5.6 GHz to 5.7 GHz
- Using High-Efficiency GaN Transistor
- Control Communication RS422
- Real time status of Amplifier over Ethernet
- WR159 Waveguide Output
- Internal Power supply unit
- Forced Air Cooling

Applications

- Radar
- Weather Radar
- High Power RF Application



Description

RRK56578K5-790 uses GaN transistors and is designed for the high power radar applications at 5600 ~ 5700 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 @ $V_{ac} = 415V, 50 \text{ \& } 60Hz, T_o = 25 \text{ }^{\circ}C, 50 \text{ }\Omega$ Input System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	GHz	5.6	-	5.7	f_o
Operating Bandwidth	MHz	-	-	100	BW
Output Pulse Power	kW	8.5	-	-	P_o
Input Pulse Power	dBm	-11.5	-	-8.5	P_i
Power Gain	dB	-	79	-	G_P
Power Gain Variation	dB	-	-	1	ΔG_P
Duty Cycle	%	-	-	10	DC
Pulse Width	us	1	-	100	PW
Amplitude Pulse Droop	dB	-	-	1.0	Droop
Pulse Rise Time/ Pulse Fall Time	ns	-	-	200	T_r/ T_f
Spurious	dBc	-60	-	-	Spur
Harmonics 1 to N	dBc	-40	-	-	H_N
VSWR	-	-	-	2.0 : 1	VSWR
Output Power Monitoring	dBc	-62.5	-	-57.5	P_M
Operating Voltage	VAC	+373	-	+457	AC
	Hz	50		60	V_F
Gate Pulse Interface	-	RS422 Differential			C_i
Protection & Warning Alarm (Ethernet & LEDs, Real time status)	-	RVS Power Alarm & Shutdown		VSWR over 3 : 1	
	-	Over Duty Cycle Alarm & Shutdown		> 10 %	
	-	HPA Over Temp Alarm & Shutdown		> 95 $^{\circ}C$	
	-	HPA Alarm(each)		Output power, Ethernet & LED	

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	-	Pre Driver Alarm(each)	Input power/ Output power
	-	Communication	LED
	-	PSU & FAN, Interlock Alarm	LEDs

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Temperature Range	°C	+5 ~ + 40 °C
Storage Temperature Range	°C	- 40 ~ + 70 °C
Humidity	%	95 % RH Maximum

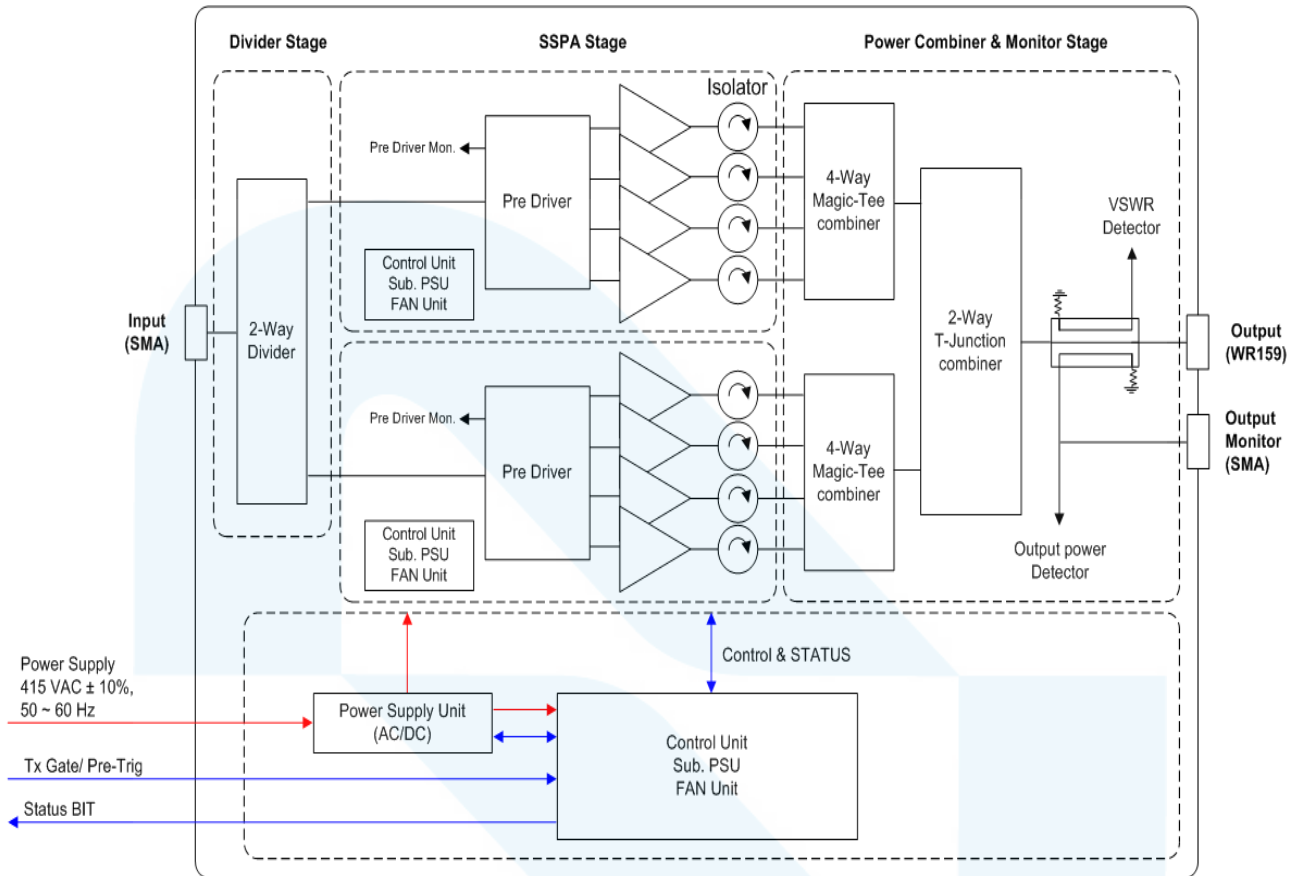
Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions	-	21inch Rack Mount, 12 U 740 × 823 × 1,075 (W × H × D, mm)
Weight	kg	≤ 210
RF Input Type	-	SMA(Female)
RF Output Type	-	WR159 Choke
RF Output Monitor Type	-	SMA(Female)
Pre-Driver Amp. Output Monitor Type	-	SMA(Female)
Gate Pulse Connector	-	MIL STD D38999 Type
Status Connector	-	RJ45 Type
Power Connector	-	MIL STD D38999 Type
Cooling	-	Forced Air Cooling

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Block Diagram

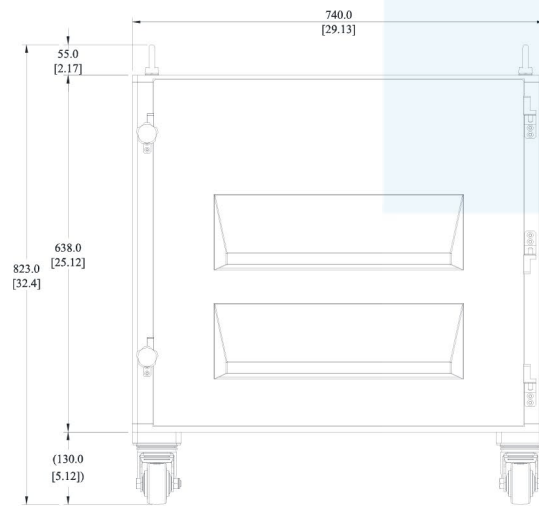


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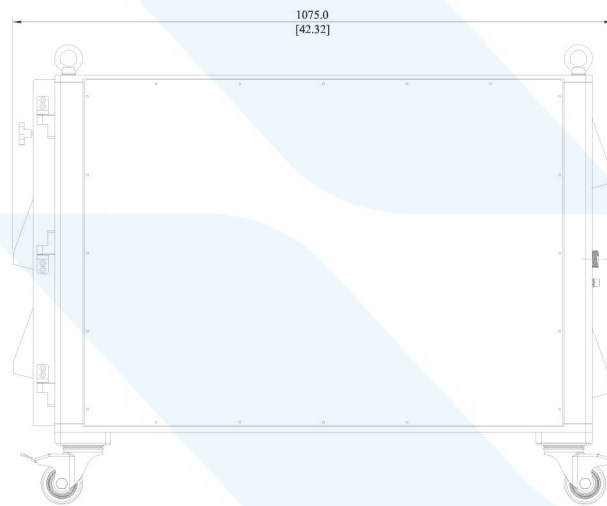


Mechanical Drawing

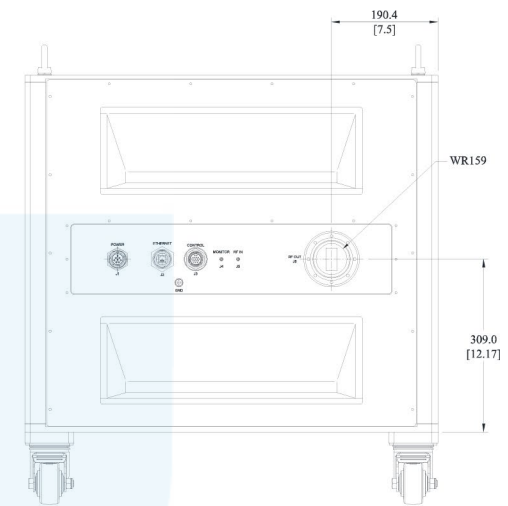
unit: mm
[inch]



Front



Side



Rear

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Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RRK56578K5-790	Apr. 22th. 2022	0.1	Initial release	Preliminary
RRK56578K5-790	Sep. 15th. 2022	0.2	Modified Spec	Preliminary

* All the data in this document may be subject to change without prior notice.



Certification

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

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