S-BAND 7.5kW Transmitter RRT27317K5-690

Product Features

• Dual 7.5kW Pulsed Transmitter combined by 4 HPAs Transmitter
• Frequency from 2.7GHz to 3.1GHz
• Using High-Efficiency GaN Transistor
• BIT & Control by RS-422, LVDS
• WR-284 Waveguide Output
• Forced Air Cooling

Applications

• Airport Surveillance Radar
• Weather Radar
• Industrial and Scientific
• Instrumentation Amplifier
• Defense Radar

Description

The RRT27317K5-690 Transmitter, in which state of the art SiC GaN technology is used, is designed for the high-power radar application at the frequency of 2700 ~ 3100 MHz. The transmitter is majorly used in the areas of the airport, weather, maritime, defense, industrial, and scientific applications. This GaN-based Solid State Transmitter replaces industrial magnetrons or other vacuum type tubes which have been currently used in high power applications. The forced air-cooling in each module is used for user convenience, easy and quick maintenance. The redundant architecture was applied PSUs, preventing single-point failures. HPAs in the transmitter sub-system are parallelized for secure operation in the event of an HPA fault condition, also.

Electrical Specifications @ V_{ac} = +380V, To =25°C, 50Ω Input System

PARAMETER	UNIT	MIN.	TYP.	MAX.	SYMBOL
Operating Frequency	GHz	2.7	-	3.1	f_O
Operating Bandwidth	MHz	-	400	-	BW
Output Pulse Peak Power	kW	7.5	-	-	P_O
Input Pulse Power	dBm	-2	0	2	P_I
Gain Variation	dB	-	-	2	ΔG_P
Duty Cycle	%	-	-	10	DC
Pulse Width	us	1	-	100	PW
Amplitude Pulse Droop	dB	-	-	1.0	Droop
Spurious	dBc	-60	-	-	Spur
Rise / Fall Time	ns	-	-	100	T_r / T_F
VSWR	-	-	-	2.0 : 1	VSWR
Power Consumption @ 10%	kW	-	6	-	Pc
Operating Voltages	VAC	+208VAC 3P3W or +380VAC 3P4W			
Control Interface	-	RS422 or LVDS			
Protection & Warning Alarm (BIT)	-	DC Fail Alarm		In case of exceeding 50 ± 3V	
	-	Over Pulse Duty Cycle Protection		In case of over 10%	
	-	FAN Alarm		Failure Alarm	
	-	Driver Amp. Alarm		Low Input/ output Power Alarm	
	-	HPA		Low Output Power Alarm	
	-	Over Temperature Shutdown for fault units		Temperature monitoring.	

Environmental Specifications

PARAMETER	UNIT	VALUE
Operating Temperature	℃	-10 ~ +45
Storage Temperature	℃	-30 ~ +60
Humidity	RH %	0 ~ 95

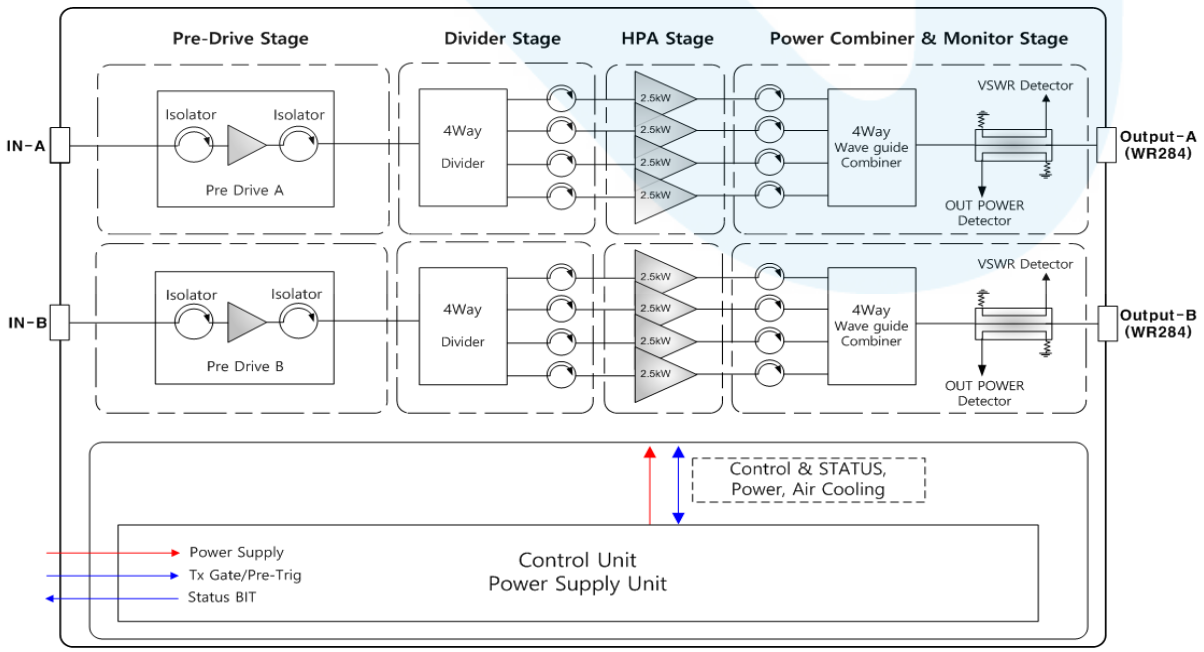
Power Supply Specifications

DESCRIPTION	PERFORMANCE VALUE
Input AC Voltage	+208VAC 3P3W or +380VAC 3P4W
Input AC Frequency	47 - 63 Hz

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions	mm	806 × 1852 × 1205 (Width × Height × Depth)
Weight	kg	680
RF Input Connector	-	N-Type (Female)
RF Output Connector	-	WR-284(Flange, CPR284F)
Output Monitor Connector	-	N-Type (Female)
Cooling	-	Forced Air Cooling by Fans

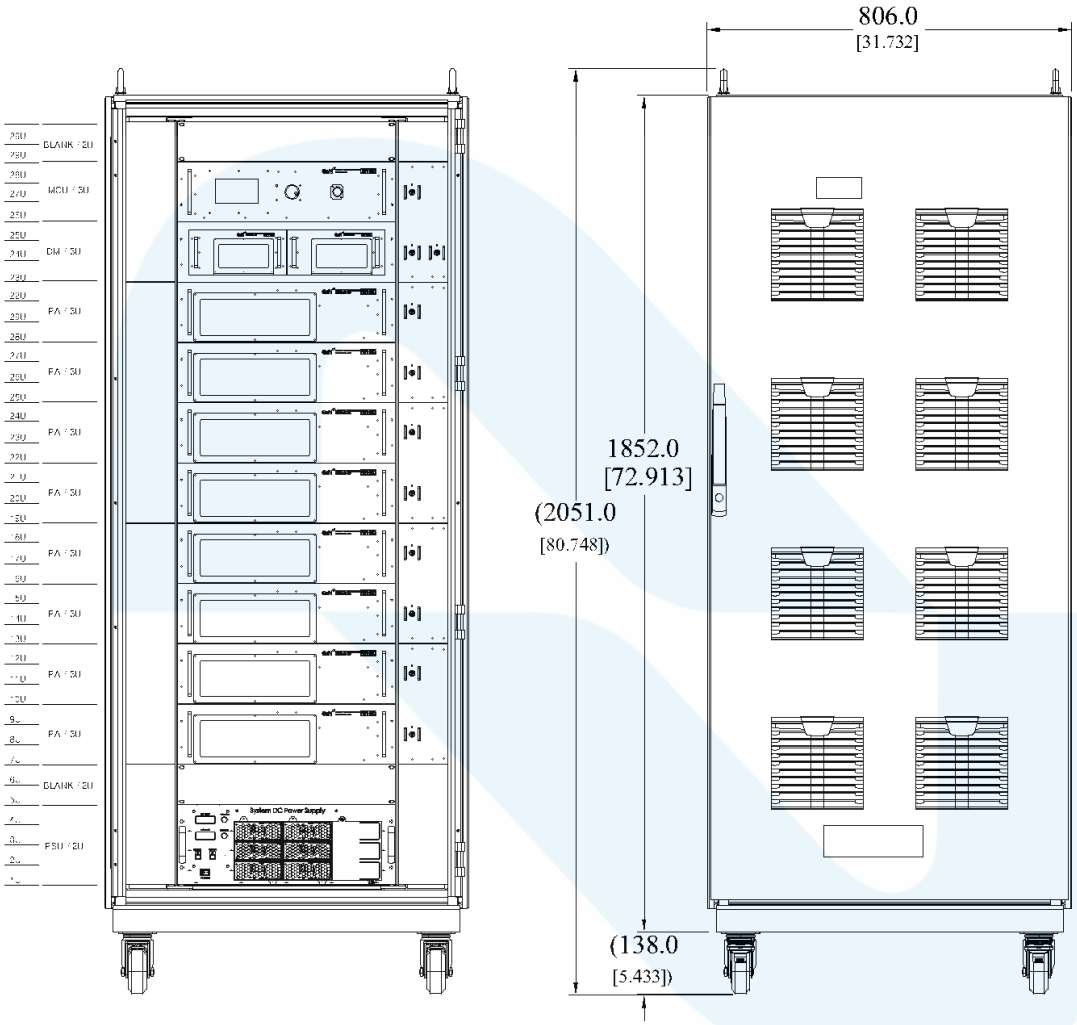
Block Diagram

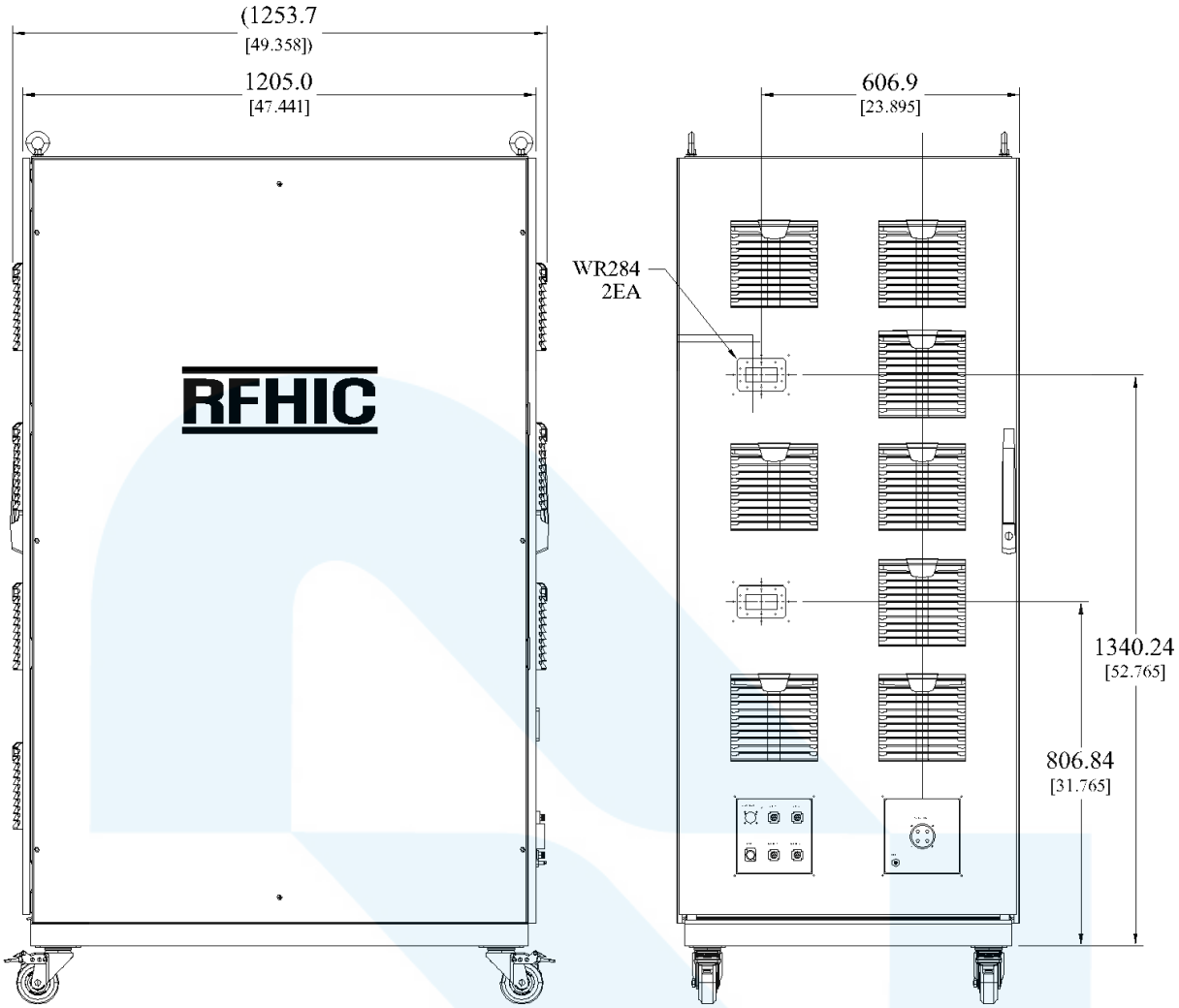


Note : Block diagram may be subject to change without notice.

Mechanical Drawing

unit: mm
[inch]





Note

Dimensions and Connectors may be subject to change without notice.
D-sub connectors, rf cables, and power cables are not included in this picture.

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
RRT27317K5-690	15th Sept. 2020	0.1	Initial Release of Datasheet	Preliminary
RRT27317K5-690	17th Jan. 2024	0.2	Dimension size revised	

kiwa certified MANAGEMENT SYSTEM KS Q 9100:2018 AS9100 D

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