ANYWAVE

PA-560W

User Manual

Version 1.0

ACT-5XU-560-A-C

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Contents

1 Product Appearance

1.1 Front Panel

➢ RF Button
- ■ Press the RF button to turn the RF signal ON (inside blue light will light up).
- ■ Press the RF button again to turn the RF signal OFF (inside blue light will be off).

➢ LED_PWR
- ■ Blue light will be on when the DC voltage of internal power supply is within the normal range (48 VDC ~ 52 VDC).
- ■ Blue light will flash when the DC voltage of internal power supply is out of the normal range (48 VDC ~ 52 VDC).
- ■ Blue light will be off when the external power supply is turned off, or internal power supply module does not work.

➢ LED_FWD
- ■ Blue light will be on when RF_OUT has power output.
- ■ Blue light will be off when the RF button is turned off, or the PA enters the auto-protection mode and therefore shuts down its RF output. There are several situations which will result in auto-protection mode, such as the input power is too high, the reflected power is too high, or the temperature is too high.

➢ LED_RFL
- ■ Red light will be off when the reflected power is normal. (Threshold configurable)
- ■ Red light will be on when the reflected power is too high. It may be caused by no load connected to port RF_OUT. In this case, the PA will enter auto-protection mode and there will be no RF output.

➢ LED_TEMP
  ■ Red light will be off when temperature is normal ($\leq$ 140 ºF).
  ■ Red light will be on when system temperature is too high (> 140 ºF). It may be caused by a broken cooling system. In this situation, the PA will enter auto-protection mode and there will be no RF output.

Note:

1) The front fan covers can be removed to clean the air intake path. No screw driver is needed, and no disassembly of the PA is required.

2) When a warning occurs and the PA enters auto-protection mode, the only way to clear this state is to cycle power on the PA module once the problem(s) is resolved. Otherwise all warning LEDs will remain on even if the problem(s) no longer exists.

1.2 Back Panel
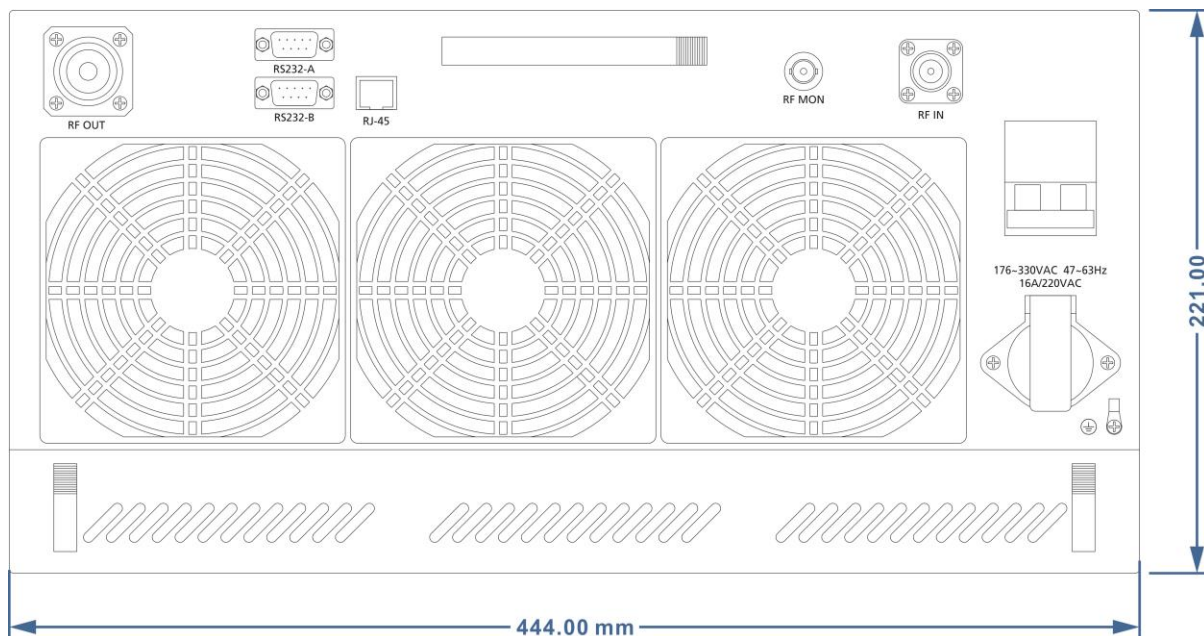
> ➤ RF_IN
> - ■ Connector: N
> - ■ Impedance: 50 Ω
> - ■ Rated Power: +1 dBm ± 1 dB @ 700 W output
> - ■ Note: If input power from RF_IN is lower than rated input value, the output power will be lower than rated output power accordingly. This is because the PA has a fixed gain of 56 dB ± 1 dB. If the input level from RF_IN is higher than the rated value, it will result in RF output distortion and performance deterioration. If the input level is more than 1 dB higher than the rated value or the output power is higher than 720 W, it may trigger the current-limiting function of the internal power supply. The PA will enter the auto-protection mode, and there will be no RF output.

> ➤ RF_OUT
> - ■ Connector: 7/16 DIN
> - ■ Impedance: 50 Ω
> - ■ Rated Power: 700 W (ATSC) before filter
> - ■ Note: RF_OUT must be connected with a load, otherwise the PA will enter the auto-protection mode and there will be in no RF output. Please note that the PA is designed to withstand any load conditions, including no load at all, without damaging the PA. However it is strongly suggested to have a load connected with proper impedance.

- ➢ MONITOR (loop out of RF_OUT)
  - ■ Connector: BNC female
  - ■ Impedance: 50 Ω
  - ■ Rated Power: 0 dBm ± 3 dB @ 700 W
  - ■ Note: It is OK to leave this port open without load.

- ➢ RS232-A
  - ■ Connector: DB9-M
  - ■ Note: Connected to REMOTE (RS232) port of ACT-5X, which is used for control and communication between the PA and the exciter.

- ➢ RS232-B:
  - ■ Connector: DB9-M
  - ■ Note: Reserved

- ➢ RJ45
  - ■ Connector: 10M/100M Ethernet
  - ■ Note: For customers' remote control to the PA.

Note:
1) The back fan covers can also be removed to clean the air intake path. No screw driver is needed, and no disassembly of the PA is required.

2 Specifications

➢ Environment
- ■ Operation Temperature: -10 ºC ~ +60 ºC (+14 ºF ~ +140 ºF)
- ■ Operation Humidity: 20 % ~ 90 % (non-condensing)
- ■ Atmospheric Pressure: 86 kPa ~ 106 kPa

➢ Power Supply
- ■ Voltage: 90 ~ 300 VAC
- ■ Frequency: 47 ~ 63 Hz

➢ Others
- ■ Frequency: 473 MHz ~ 794 MHz
- ■ VSWR: ≤ 1.5
- ■ Shoulder Level: ≥ 30 dBc (before pre-correction @ 700 W before filter)
- ■ Power consumption (full power): 3080 W @ 720 W output (14 A/220 V)
- ■ Power consumption (half power): 2112 W @ 360 W output (9.6 A/220 V)
- ■ Size: 19" W x 8.75" H x 27.2" D
- ■ Weight: 119 LBS

Note
1) The electrical interface characteristics are measured at rated power. Values may change.
2) Operating in abnormal conditions may result in damage to the equipment. Long operating hours in severe environments may reduce the reliability of the entire system, which may cause permanent damage to equipment. Make sure all electrical interface characteristics and environmental parameters are within the defined range listed above before operating this equipment.

3 Control Interface

3.1 Local Control Interface

Local control and monitoring of the PA unit is accomplished via the ACT-5X Exciter front panel user interface. Use a standard serial cable to connect the PA D9 RS232-A port to the ACT-5X Exciter D9 REMOTE (RS232) port. With this connection established, all the PA information will be displayed in the PAC sub-menu in the advanced menu of ACT-5X exciter, as shown below:

Table 1 PAC sub-menu in Advanced Menu

	VOL_9	VOL_12	VOL_50	PA_FWD	PA_REF	GV	VSWR	PA_TEMP	PA__LVL	CUR1_50	Cur2_50	Cur3_50	Cur4_50
Value	8.72V	12.07V	49.37V	694.22W	1W	1.64V	1.07	100.88℉	560W	12.06A	11.25A	11.18A	11.67A
Content	Voltage of 9V DC supply	Voltage of 12V DC supply	Voltage of 50V DC supply	Forward power of PA	Reflected power of PA	Grid Voltage (bias voltage)	Voltage standing wave ratio	Temperature of PA	700W(ATSC)	Current 1	Current 2	Current 3	Current 4

Note: The displayed settings and numbers in the tables below are for illustration purposes only and may be different from those in actual use.

A second sub-menu is available for configuring the PA networking settings. Enter the main menu of ACT-5X exciter and locate the PA_CNFG sub-menu to setup the IP, GATEWAY and MASK PA networking parameters.

Table 2 PA_CNFG sub-menu in Control Mode

	IP	GATEWAY	MASK
Default	192.168.001.210	192.168.001.001	255.255.255.000
Options	***.***.***.***	***.***.***.***	***.***.***.***

3.2 Web Interface

Enter the IP address of the PA (the default value is 192.168.1.210) in a web browser's address bar to cause a login window to pop up.

login

User name	Password	
		login

There are two tiers of web interface available. The first "guest" tier is limited in monitoring and control, allowing users to retrieve information such as PA status, network configuration, and alarms. The guest account is accessed with a user name and password of "guest" and "guest" (case sensitive). The second "admin" tier provides full status and control of the PA and is accessed with a username and password of "anywavecom" and "anywavecom" (case sensitive).

The screenshots below highlight the status and control available via the guest and admin web interfaces.

Power Amplifier   Log out

AMP-RUN-PARA

9V-VOL		12V-VOL		50V-VOL		50V-CUR-1		50V-CUR-2		50V-CUR-3		50V-CUR-4		FRONT-GV		
8.74	V	12.08	V	48.92	V	12.23	A	10.05	A	11.33	A	12.12	A	1.82	V	

IN-POW		FWD-POW		REF-POW		VSWR		AMP-TEMP		FAN1_SPEED		FAN2_SPEED		FAN3_SPEED		
9.18	dBm	695.83	W	1.33	W	1.09		104.66	°F	5340	RPM	5340	RPM	5340	RPM	QUERY

ALARM-INFO

FWD-POW	REF-POW	VSWR	IN-POW	FAN1	FAN2	FAN3
OK	OK	OK	OK	OK	OK	OK

50V-VOL	50V-CUR-1	50V-CUR-2	50V-CUR-3	50V-CUR-4	TEMP	
OK	OK	OK	OK	OK	OK	QUERY

EXCITER-BAND

BAND	
6M	SET

EXCITER-FREQ

FREQ_6M	
653M	SET

DEVICE-TYPE-SET

POW-DEGREE	EXCITER-TYPE	
560W	ATSC	SET

NET-PARA-SET

IP				MASK				GATEWAY				
192	168	1	210	255	255	255	0	192	168	1	1	SET

VERSION

CONTROL-BOARD	COLLECT-BOARD
20131017	20130926

Note:

1) To refresh the status of the PA unit, one could manually click the "Query" button(s) on the page, or set up the "AUTO-REFRESH-CYCLE" for the auto periodic refreshing of status.

2) Configuration settings including "POWER_DEGREE", "EXCITER_TYPE", internet access settings and "REFRESH-CYCLK" may be modified via this PA web GUI.

3.3 Serial Port Interface

The port RS232-B of PA is reserved to be used as serial port interface for remote control.