



ANYWAVE
COMMUNICATION TECHNOLOGIES

MPTV User Manual

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MEDIUM POWER VHF BAND 1 1KW TV TRANSMITTERS





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FCC Compliance

This equipment complies with relevant portions of Parts 2, 73, & 74 of the FCC rules governing LPTV operation.

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PLEASE READ THIS MANUAL IN ITS ENTIRETY BEFORE ATTEMPTING TO OPERATE THE EQUIPMENT. CONTACT ANYWAVE WITH ANY QUESTIONS OR CONCERNS YOU MAY HAVE.

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Unpacking

Carefully unpack the equipment and perform a visual inspection to determine if any apparent damage has occurred during shipment. Please notify the delivery carrier and Anywave immediately if shipment damage has occurred. Retain all original shipping materials.

Please locate and reference the Packing Check List to verify you have received all components of your system. Retain the Packing Check List for future reference.

Also, please identify and remove all packing materials and supports (foam pads, etc.) prior to initial turn on of the equipment.

Returns and Exchanges

Written approval and a Return Material Authorization number (RMA) are required from Anywave for all equipment returns. Please direct all return inquiries to the Anywave Service Department at support_us@anywavecom.com, providing the Sales Order number and Serial Number(s) of the equipment. Complete details regarding the nature and circumstances of your return must be included in your RMA request. Proper handling and return shipping instructions will be provided with an approved RMA number.

Technical Support

Technical support and troubleshooting assistance for Anywave Transmitters is available through the Anywave Technical Support Department during normal business hours (9:00 AM - 5:00 PM Eastern Time) at (847) 415-2258 (option 2). After hour Emergency Support is available at (847) 415-2258 (option 3). Email questions anytime to support_us@anywavecom.com and a Technical Support Engineer will respond as soon as possible.

Note: For all service and support requests, you will need to provide the Serial Number of the equipment with your Sales Order number. For future reference, please record that information here:



WARNING

THE VOLTAGES, CURRENTS, AND RF ENERGY IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY WARNINGS, INSTRUCTIONS, AND REGULATIONS.

IN THE CASE OF EMERGENCY, ENSURE THAT ALL POWER HAS BEEN DISCONNECTED.

ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS, ENCLOSURES, OR SHIELDS. DO NOT PERFORM SERVICE ON THE EQUIPMENT WHEN ALONE OR FATIGUED. KNOW YOUR EQUIPMENT AND DO NOT TAKE RISKS.

This manual is provided as a general guide for trained and qualified personnel well aware of the dangers inherent in handling potentially hazardous electrical transmission equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment and must **ONLY** be performed by qualified personnel exercising due care. Anywave Communication Technologies, Inc. shall not be responsible for injury or damage resulting from improper handling or from the use of improperly trained or inexperienced personnel performing such tasks.

All local building and electrical codes as well as fire protection standards must be observed in the installation and operation of the equipment.



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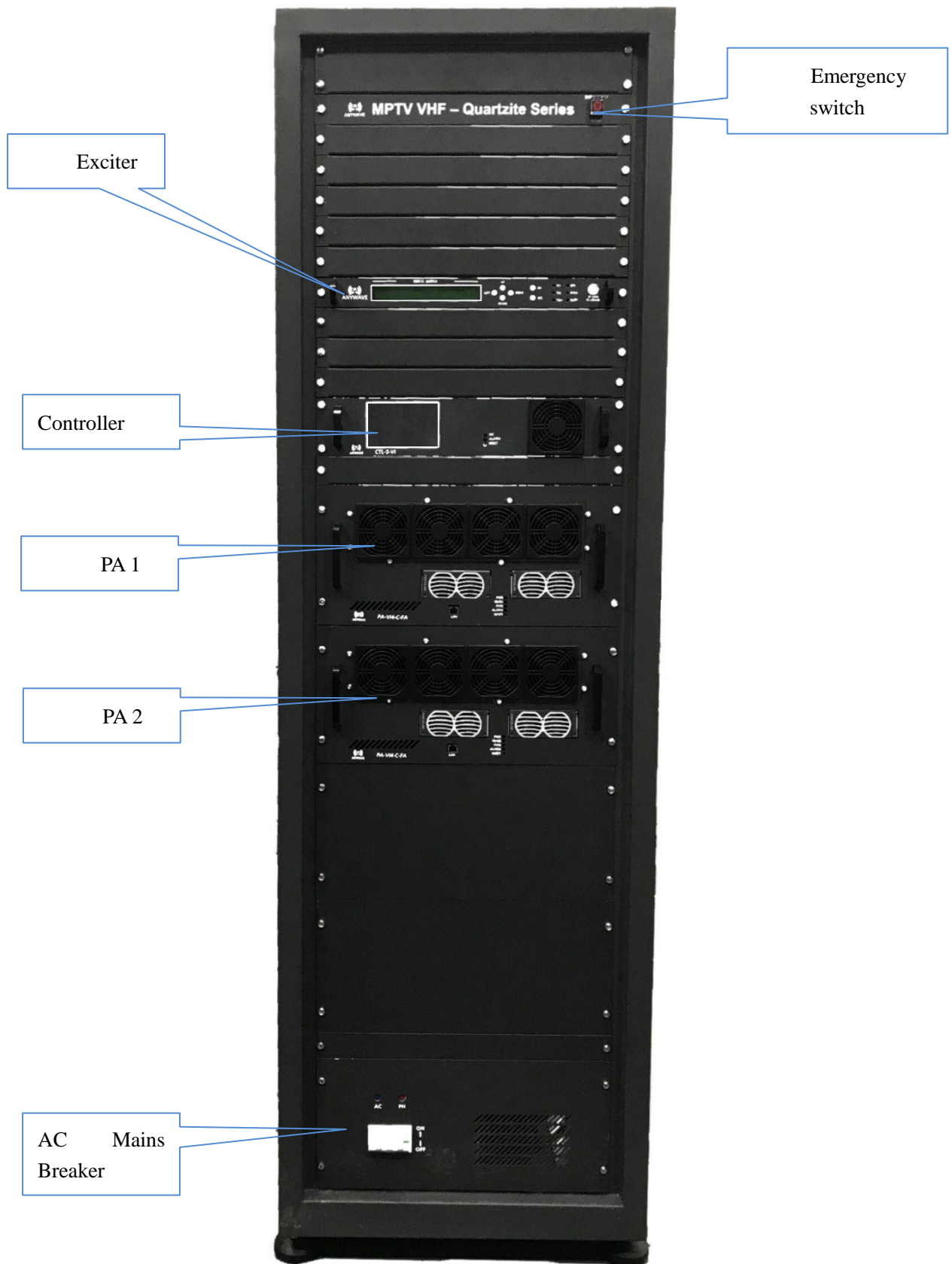


1. Introduction

This User Manual contains operational instructions for the Anywave MPTV VHF Band 1 1kw TV Transmitter fitted with 2 PA drawers, delivering ATSC output powers of 1 kW (after the BPF). Please note that trained and qualified personnel are required to operate, install, maintain, and service this transmission equipment.

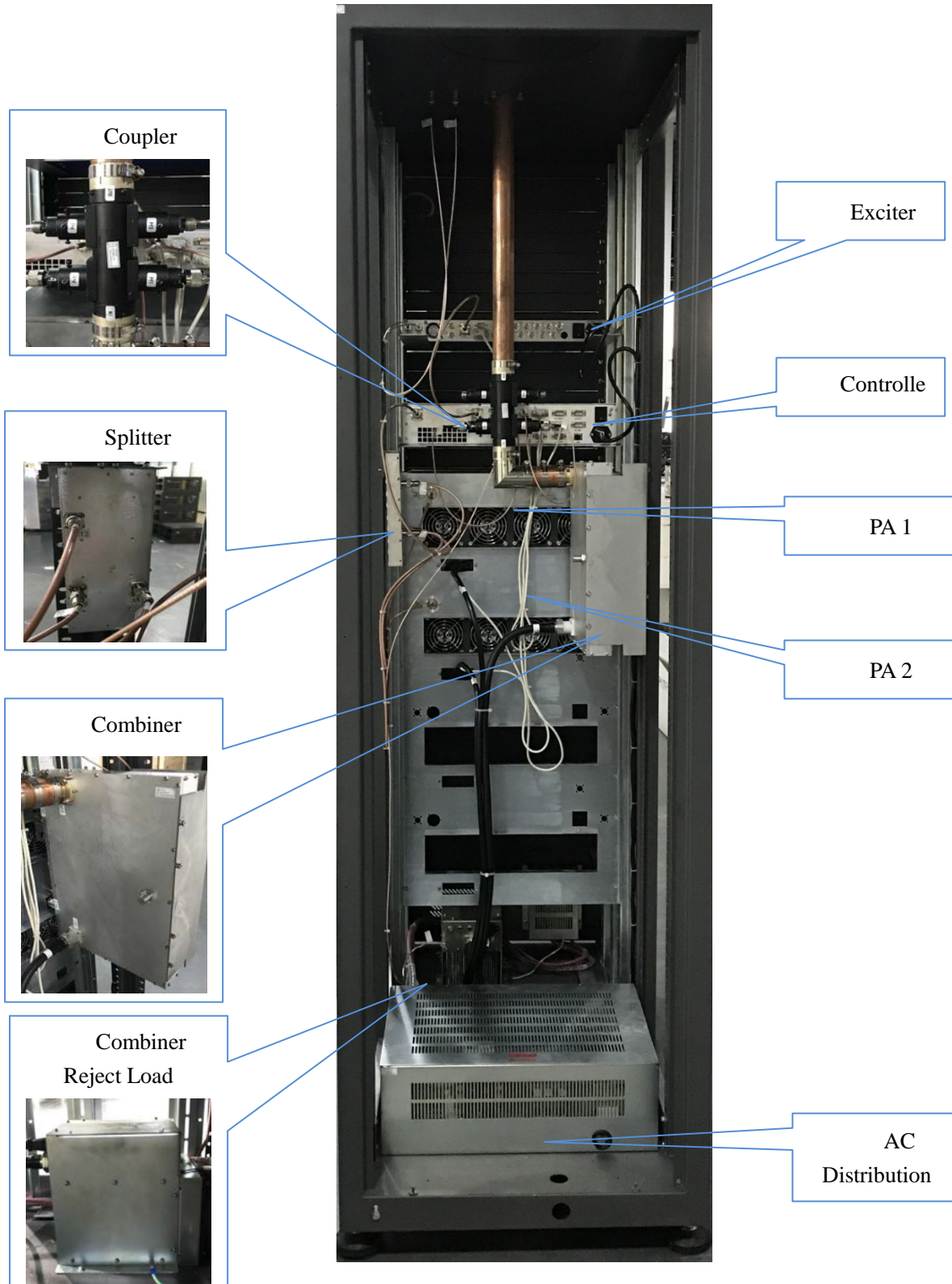
1.1 TX Overview

The Anywave MPTV VHF Band 1 1kw Transmitter comes in single and dual exciter configurations. Photos of a single exciter system are shown below. The main subsystems (as seen from the front) include Exciter(s), Controller (with a touchscreen LCD, and built-in preamp), two 600W power amplifiers (4-power transistors per PA), an AC Mains Breaker, and a channel mask Band Pass Filter (BPF) – optional – installed on the top of the cabinet rack.



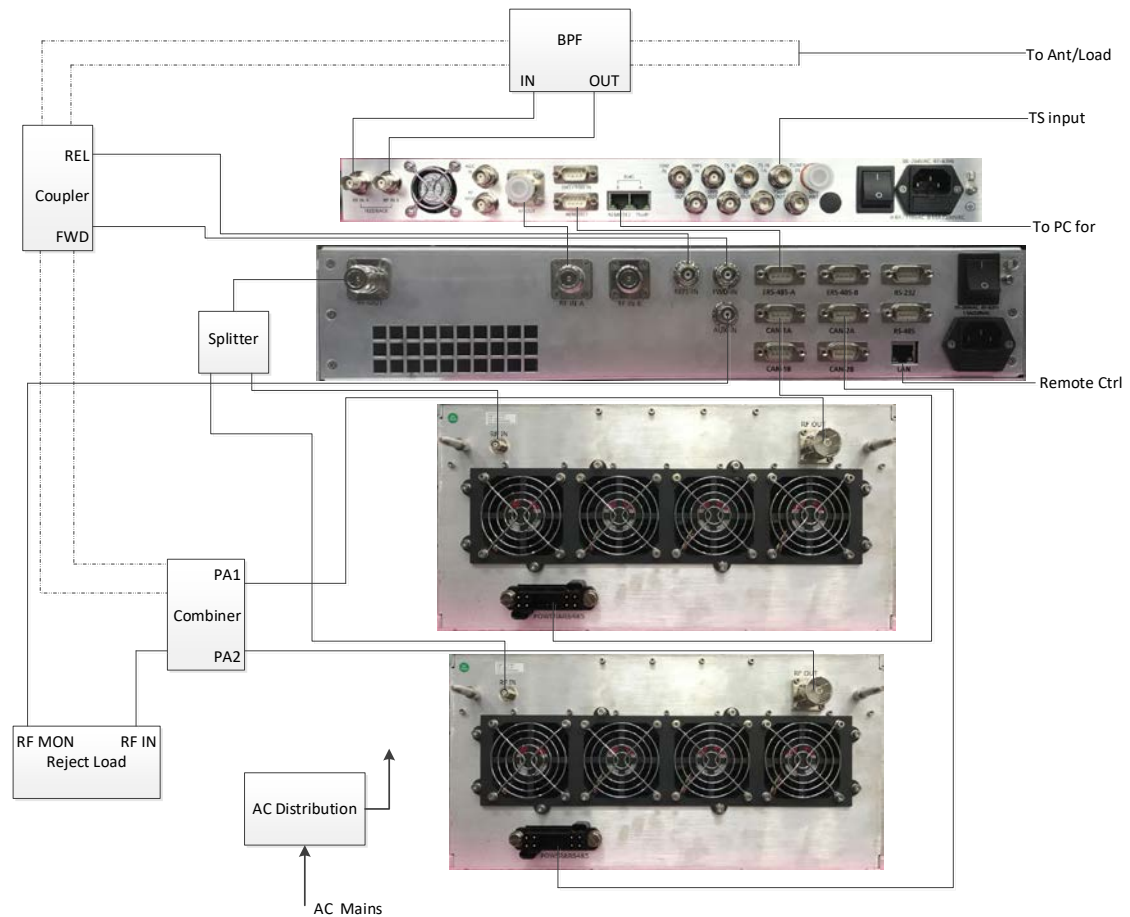


From the rear view of the TX cabinet, several other main components can be seen which include an AC Distribution System, 2-way Splitter and Combiner, 2-port Directional coupler and Combiner Reject Load.



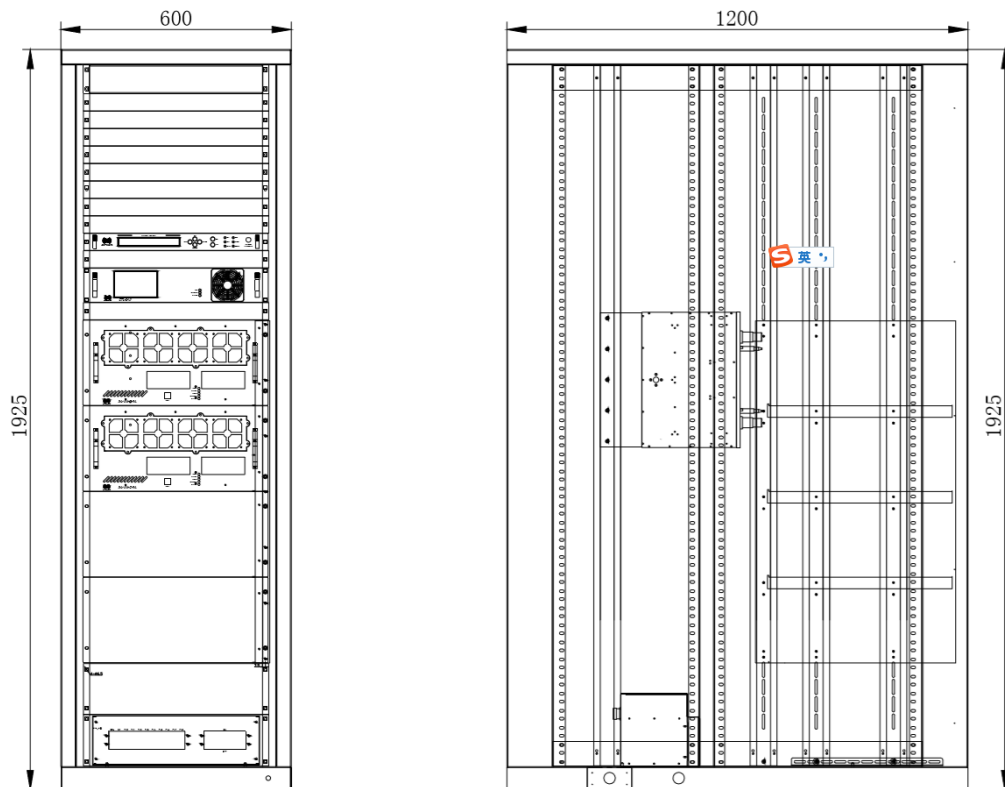


The diagram below shows the overall system interconnect between the various modules in the 2-PA MPTV system.





The 2-PA MPTV system Cabinet dimensions are shown below. Please note: the BPF (not shown) is by standard mounted on top of the TX cabinet – and the additional height of the BPF must be considered in the overall system height.





1.2 TX Specifications

- RF Output
 - ◆ Connector: 1 5/8", 50 Ω
 - ◆ Frequency: 54MHz~88MHz (specify with order)
 - ◆ Rated Power: 1kW (rms) (ATSC)
 - ◆ Level Stability: < ± 0.2 dB
 - ◆ MER: > 35 dB
 - ◆ Amplitude Flatness: < ± 0.5 dB
 - ◆ Shoulder Level: < - 50 dB (after correction)
 - ◆ Return Loss: > 16 dB
- Environment
 - ◆ Operation Temperature: 0 °C ~ +40 °C
 - ◆ Operation Humidity: < 95 % (non-condensing)
 - ◆ Atmospheric Pressure: 86 kPa ~ 106 kPa
- Power Supply
 - ◆ Voltage: 240 VAC 1-phase, or 208 VAC 3-phase (specify with order)
 - ◆ Frequency: 50/60 Hz

Note

1. The electrical interface characteristics are measured under normal conditions. Values may vary.
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.



1.3 AC Power Requirements

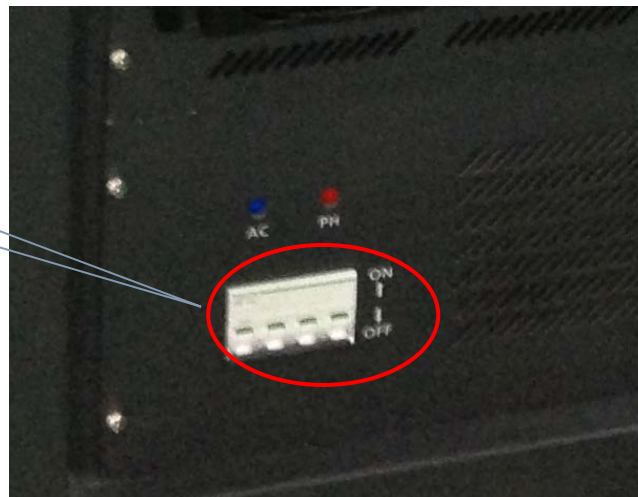


Please review the safety WARNINGS on page 4 of this manual before proceeding with any electrical work.

A licensed Electrician is required to properly and safely connect the AC mains power cable from your stations electrical panel to the terminal block located inside the TX AC Mains Distribution compartment in compliance with local electrical and building codes. Please note: a power cable is not provided with the Transmitter system and should be obtained via your local Electrician.

Be sure the Main Breaker on the lower left front of the TX is turned OFF before performing any electrical work on the TX (as shown below).

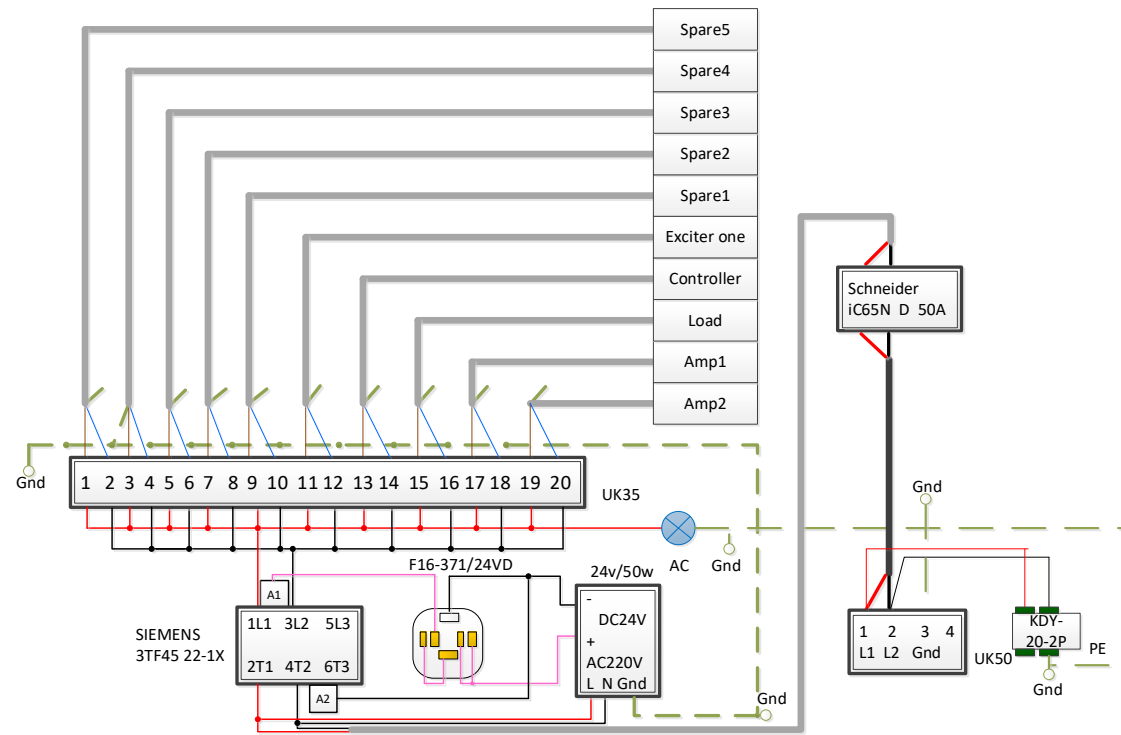
Main Breaker OFF





The MPTV VHF TX AC distribution compartment may be wired for 240VAC single-phase (3-wire, L1, L2, GND) or 208VAC three-phase (4-wire, L1, L2, L3, GND) power to be sourced from a proper breaker sized according to the charts below. Also, please note the recommended cable gauge to make the connection between the TX AC Mains Distribution terminal block and the circuit breaker installed in the facility electrical panel. Please note: this cable is not provided with your Transmitter equipment and should be obtained from your local Electrician. The transmitter cabinet should also be properly bonded to the building lightning protective ground and have a good RF ground. This is typically done with a 2" to 4" copper strap that is connected to the cabinet ground, found at the bottom rear of the TX cabinet, making sure all equipment inside the rack is tied to this ground.

2-PA 240VAC, Single-Phase AC Distribution Wiring

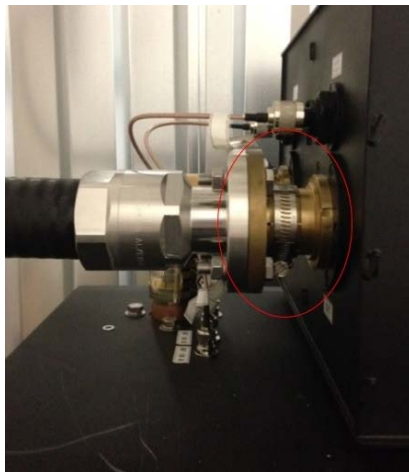
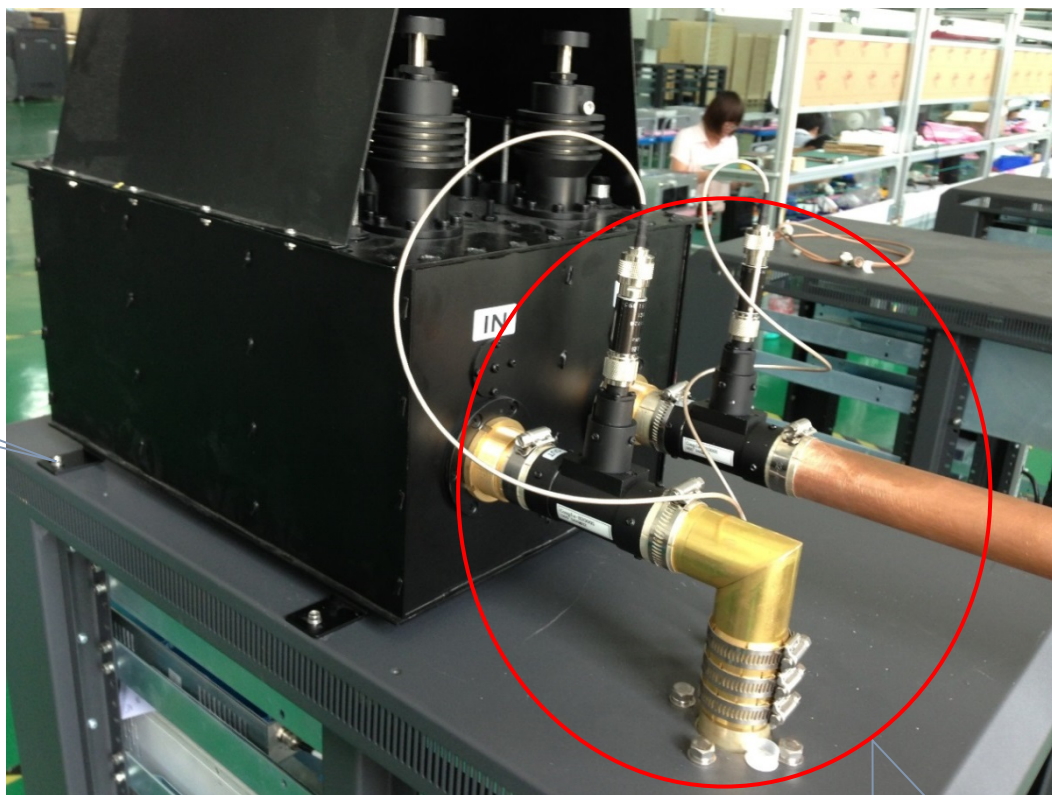


Properly connect the three wires to the terminal block as shown in the above diagram, taking care to notice which terminal is connected to the chassis Ground in your system. Be sure to connect the GND terminal properly and other two connections as L1 and L2.



1.4 RF System Connections

If you purchased an Anywave BPF, it is designed to be installed and mounted on top of the TX cabinet (as shown below). Four metal stand-offs “feet” with mounting hardware are supplied with the BPF to allow it to be fastened and secured to four holes located in the top panel of the cabinet. Please reference Section 3 “Installation/Initial Turn-On” for step-by-step instructions on setting up and connecting your RF System components.



(Please note: The MPTV comes standard with a 1 5/8 EIA Flanged output connector. If your Antenna feed is other than 1 5/8 EIA flanged (as shown on left), you will need to provide whatever adapter hardware is necessary to facilitate this connection to your Antenna feed).



Before and After BPF Directional Coupler installation

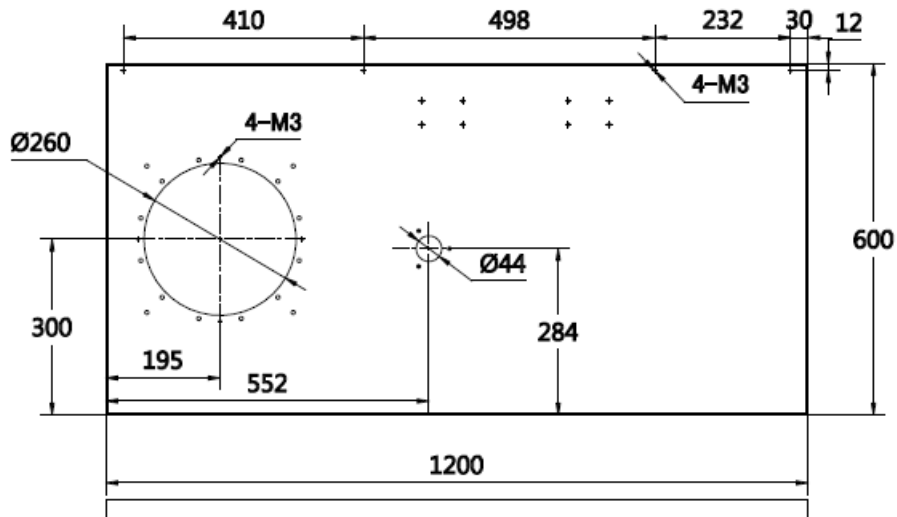
Please be sure to install the Before and After BPF Directional Couplers in the correct positions and orientation. Incorrect operation of the TX system may result if these directional couplers are not installed in the proper locations with the proper orientation as labeled.



1.5TX Ventilation

MPTV PA cooling is from front to rear. In a standard installation, warm air is vented out perforations in the cabinet rear door and into the room. A proper air-conditioned, dust-free environment is required to operate the TX equipment.

There is an option to exhaust heat out the top of the cabinet. The top-down cabinet drawings below show the provision for the top panel ventilation hole (11 inch). Please specify cabinet ventilation when ordering. If you specify top ventilation, the TX will be delivered with a solid rear panel door (instead of the standard perforated rear door). All TXs are provisioned with a single ventilation hole at the top of the cabinet.





2. Theory of Operation

The MPTV transmitter is conceptually simple to understand and easy to operate.

The Transmitter operates on either 240VAC single-phase (3-wire) or 208VAC / 480VAC three-phase (4-wire) AC Mains service. An AC Mains Distribution compartment is located on the back-rear floor of the TX. This compartment is shielded for personnel safety and provides the distribution of appropriate AC power to the various modules inside the TX cabinet.

A standard ATSC ASI input stream is provided to one of the BNC connectors located on the rear panel of the Exciter. The Exciter (different platforms) supports options for DVB-ASI and SMPTE310M stream formats as well as an RF off-air input via a built-in tuner and TSoIP support via an RJ-45 input. The Exciter performs the appropriate modulation to produce an RF output at the desired channel frequency. Exciter configurations may vary – for DTV (ATSC, ATSC 3.0, DVBT/T2, ISDBT, DTMB, etc.).

The TX supports both Single and Dual Drive (DD) Exciter configurations and manages the automatic and manual switchover between Exciters in a DD configuration. The modulated RF output signal from the Exciter(s) is (are) fed into the Control module which contains a preamp driver stage and built-in N-ways splitter (for multiple PA configurations). The N-ways outputs of the Controller preamp are then to feed the RF inputs of each of the PA modules.

The PA modules contain 4 devices that amplify the RF signal to produce 600W of output power per PA. The amplified output signals are fed into a N-way Hybrid Combiner and then into a Directional Coupler and finally out the top of the cabinet via a section of 1 5/8 or 3 1/8 transmission line.

The 1 5/8 or 3 1/8 output stack of the Transmitter is then fed into an inline 1 5/8 or 3 1/8 Harmonic Filter (if required) before entering a Before-Filter directional coupler and the input to the channel mask BPF mounted on top of the cabinet. The output of the BPF connects through an After-Filter directional coupler into the Antenna feed to radiate the DTV signal on-air.

The Exciter receives the two feedback signals from the Before-Filter and After-Filter directional couplers located at the input and output of the BPF. These before and after BPF feedback signals are used by the Exciter to provide automatic Linear and Non-Linear pre-correction of the forward path signal.



Additional feedback signals are provided to the Control module, which monitors these samples to implement protective protocols including forward power reduction and shutting down the TX in the event of high reflected power or other unsafe operating conditions. System FWD and REV power samples are provided to the Control module from the Directional Coupler located directly after the N-way power combiner. The Control module also receives feedback samples from the System Reject Load(s), enabling it to control the variable fan speed of the reject load(s).

The Control module is in constant communication with the Exciter and PA modules via an RS-485 serial bus. Each module has a unique ID on the bus, and the Control module is continually talking with the Exciter and PA modules to provide monitoring and control capabilities via its front panel touchscreen and built-in web user interfaces. Both the Control module and the Exciter provide RJ-45 Ethernet connections through which the user may remotely monitor and control the TX via their respective built-in web interfaces.



2.1 Control Unit

TX Control Unit CTL-S-V1 consists of a pre-amp, and a powerful control system. It receives the RF input(s) from the exciter(s), performs the pre-amplification, and sends RF output to a PA or an external 2-way splitter to feed 2 PAs. The CTL-S-V1 communicates over an RS-485 serial bus to the PAs and Exciter(s) installed in the system and monitors system Forward, Reflected, and Reject load power.

Front panel

The front panel of Control Unit is shown below.



- Color touch screen
- LED_OK
 - If the green light is ON, then the transmitter is working in OK mode.
- LED_ALARM
 - If there is any alarm, the red light is ON, and the transmitter will shut down its output. The most common alarms include: Over-drive/over-current of PA modules or Preamp, high reflected power of PA modules or Preamp, high absorbed power, over temperature of PA modules or Preamp, etc. Please refer to Status Bar and LOG from the touch screen of Control Unit for details.
 - RESET (reserved)



Rear Panel

The rear panel of Control Unit is shown below:



- **RF_OUT**
 - Connector: N
 - Impedance: 50 Ω
 - Note: Sends pre-amplified RF signal to the inputs of PA modules
- **RF_IN_A/RF_IN_B**
 - Connector: N
 - Impedance: 50 Ω
 - Note: To receive the RF_OUT signal from Exciter_A / Exciter_B
- **REFL_IN (TX Reflected Power)**
 - Connector: BNC
 - Impedance: 50 Ω
 - Note: To receive feedback signal from Directional Coupler for Reflected Power detection and monitoring.
- **FWD_IN (TX Forward Power)**
 - Connector: BNC
 - Impedance: 50 Ω
 - Note: To receive feedback signal from Directional Coupler for Forward Power detection and monitoring.
- **AUX_IN (TX Load Reject Power)**
 - Connector: BNC
 - Impedance: 50 Ω
 - Note: To receive feedback signal from RJCT1 of reject Load for Absorbed Power detection and monitoring
- **GPRS (reserved)**
- **ERS485-A/ERS485-B:** To be connected to REMOTE of Exciter_A/Exciter_B for internal communication between exciters and Control Unit.
- **CAN-1A:** To be connected to POWER&RS485 of PA#1 for internal communication between PA module and Control Unit.
- **CAN-2A:** To be connected to POWER&RS485 of PA#2 for internal communication between PA module and Control Unit.
- **CAN-1B/CAN-2B:** Reserved.



- RS-485: Reserved.
- RS-232: Reserved.
- LAN: 10M/100M Ethernet port for web-based remote control (ipaddress: 192.168.1.210)
- AC INPUT/FUSE: 90-240 VAC
- Power Switch: ON/OFF



2.2 Digital Exciter

Front Panel



LCD:

40×2 LCD with power saving backlight

6 Buttons :

Left, Right, Up, Down, OK, ESC

6 LEDs:

When in Exciter mode:

LED_TS1: Green light on indicates TS1 is selected and the input TS signal is OK

LED_TS2: Green light on indicates TS2 is selected and the input TS signal is OK

LED_TSErr: Red light on indicates the selected input signal has error

When in Translator mode:

LED_TS1: Green light on indicates the synchronization of input RF signal is OK

LED_TS2: Green light on indicates the equalization of input RF signal is OK

LED_TSErr: Red light on indicates there is synchronization error or equalization error

In both Exciter and Translator mode:

LED_GPS: Green light on indicates GPS connected and locked

LED_RFON: Green light on indicates system ready and RF on

LED_SysErr: A flashing red LED indicates the presence of a system error

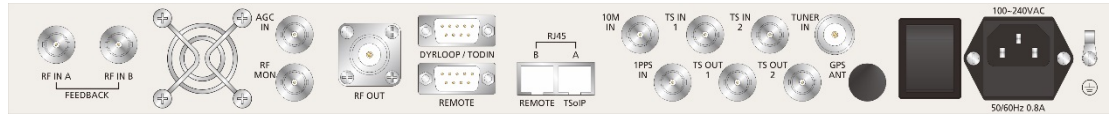
A solid red LED indicates the unit is in "Local (LCL)" control mode, and when this LED is off, this indicates that the unit is in "Remote (RMT)" control mode

1 BNC connector:

RFMON: Reserved



Rear Panel



RF_IN_A:	Feedback signal, sampled after the band-pass filter (-5 to -15dBm)
RF_IN_B:	Feedback signal, sampled before the band-pass filter (-5 to -15dBm)
AGC_IN:	Feedback DC voltage for AGC control (0-5VDC)
RF_MON:	Loop out of RF_OUT for monitoring (-25 dB below RF_OUT)
RF_OUT:	Main RF signal output of exciter, to be connected to RF_IN_A/RF_IN_B of Control Unit (nominal 0 dBm output)
DRYLOOP:	Dry loop for remote control
REMOTE:	To be connected to ERS485-A/ERS485-B of Control Unit for internal communication between exciters and Control Unit
REMOTE (RJ45-B):	10M/100M Ethernet for remote control (ipaddress: 192.168.1.143)
TSoIP (RJ45-A):	Input for IP based streams.
10M_IN:	10 MHz input from external GPS receiver
1PPS_IN:	1 PPS input from external GPS receiver
TS_IN_1:	The first port of TS inputs, DVB-ASI only
TS_OUT_1:	Loop out of [TS_IN_1] for monitoring
TS_IN_2:	The second port of TS inputs, DVB-ASI only
TS_OUT_2:	Loop out of [TS_IN_2] for monitoring
TUNER_IN:	Received RF signal input

Note: Please refer to the ACT-5X+/ACT9x Exciter User Manual for more details.



2.3 Power Amplifier – PA-VI4-C-FA

PA-VI4-C-FA PA module consists a total of 4 devices per PA drawer. Each PA is also fitted with two pluggable 50V power supplies.

Front Panel

The front panel of PA is shown as below. The LED indicators and ports are listed below.



- LAN: 10M/100M Ethernet port for web-based remote control (ipaddress: 192.168.1.200, username/password: anywavecom)
- LED_PWR
 - Green light will be on when the DC voltage of internal power supply is within the normal range (48 VDC ~ 52 VDC).
 - Green light will flash when the DC voltage of internal power supply is out of the normal range (48 VDC ~ 52 VDC).
 - Green light will be off when the external power supply is turned off, or internal power supply module does not work.
- LED_RS485
 - Green light will flash once per second when the internal communication is normal.
 - Green light will stay constantly on or off when the internal communication is abnormal.
- LED_FWD
 - Blue light will be on when TX power level is stable and higher than 10 W.
 - Blue light will flash once per second during the ramp up process and the TX power level is higher than 10 W.
 - Blue light will be off when the TX power level is less than 10 W, or it's



turned off by configuration or for protection. 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. When the transmitter reboots, the default setting of TX status is OFF.

- LED_ALARM
 - Red light will be on if there is any alarm
 - Red light will be off if there is no alarm
- RESET: To reset the IP to default (192.168.1.200).

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.

Rear Panel

The rear panel of PA is shown below with ports described as follows.



- RF_OUT
 - Connector: 7/8 DIN
 - Impedance: 50 Ω
 - Note: To send out RF signal to the input of Power Combiner (attached to the cabinet). It must always be connected to a load.
- RF_IN



- Connector: N
- Impedance: 50 Ω
- Note: To receive RF signal from RFOUT1/RFOUT2 of Control Unit.

➤ POWER&RS485REMOTE

- Note: To be connected to CAN-1A/ CAN-2A of Control Unit for internal communication between PA and Control Unit, and also to be connected with Power Supply System

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.



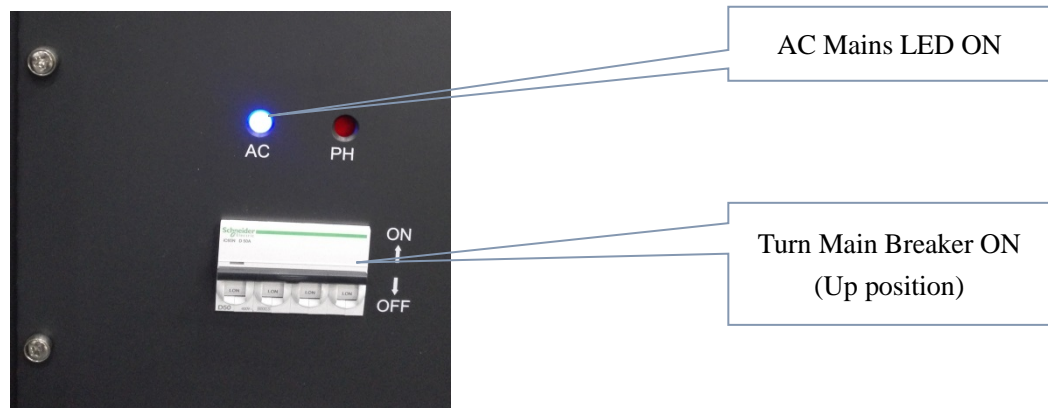
3. Installation/Initial Turn-On

Once the RF connections have been properly made into your antenna feed or suitable station load, and the Transmitter has been properly wired to the station electrical panel (as outlined in Chapter 1) you are now ready to turn on the system.

Please locate and have handy for reference a copy of your MPTV TX Factory Test Report, and Exciter User Manuals.

Please follow the steps outlined below to safely turn on and bring your TX system up to power.

1. Apply power to the Transmitter by turning ON the AC Main Breaker located in the lower left front of the TX and ensure that the AC Mains indication is illuminated. You will hear the PA fans rev up to full speed for a few seconds and then ramp down.





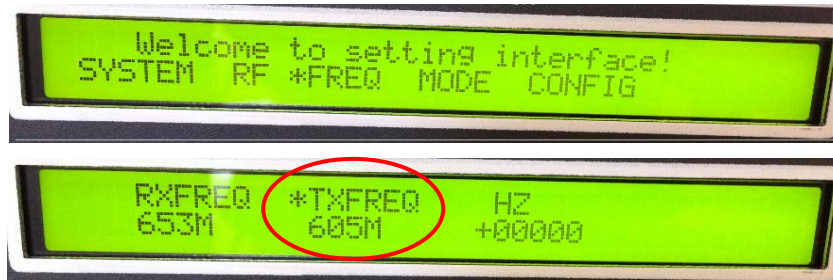
It takes a few seconds for the Controller to power up and display the HOME screen (shown below). Please note that the values will be different as the TX initially turns ON at a reduced power level.



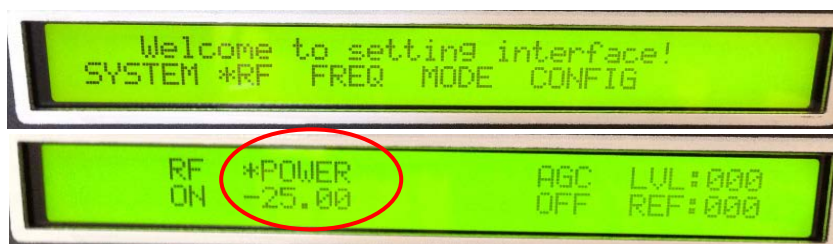
TX On/Off
(Green = ON,
Red = OFF)

The Controller HOME touchscreen display will indicate System Forward (FWD), Reflected (REFL), and Reject Load (REJT) output power in Watts in real time.

2. Check Exciter settings. Check the operating Frequency of the Exciter by navigating to the Exciter FREQ submenu (simultaneously press Left and Right buttons)



Check the Exciter drive level is set to -25dBm by navigating to the Exciter RF submenu (from above, press ESC button then enter the RF submenu).

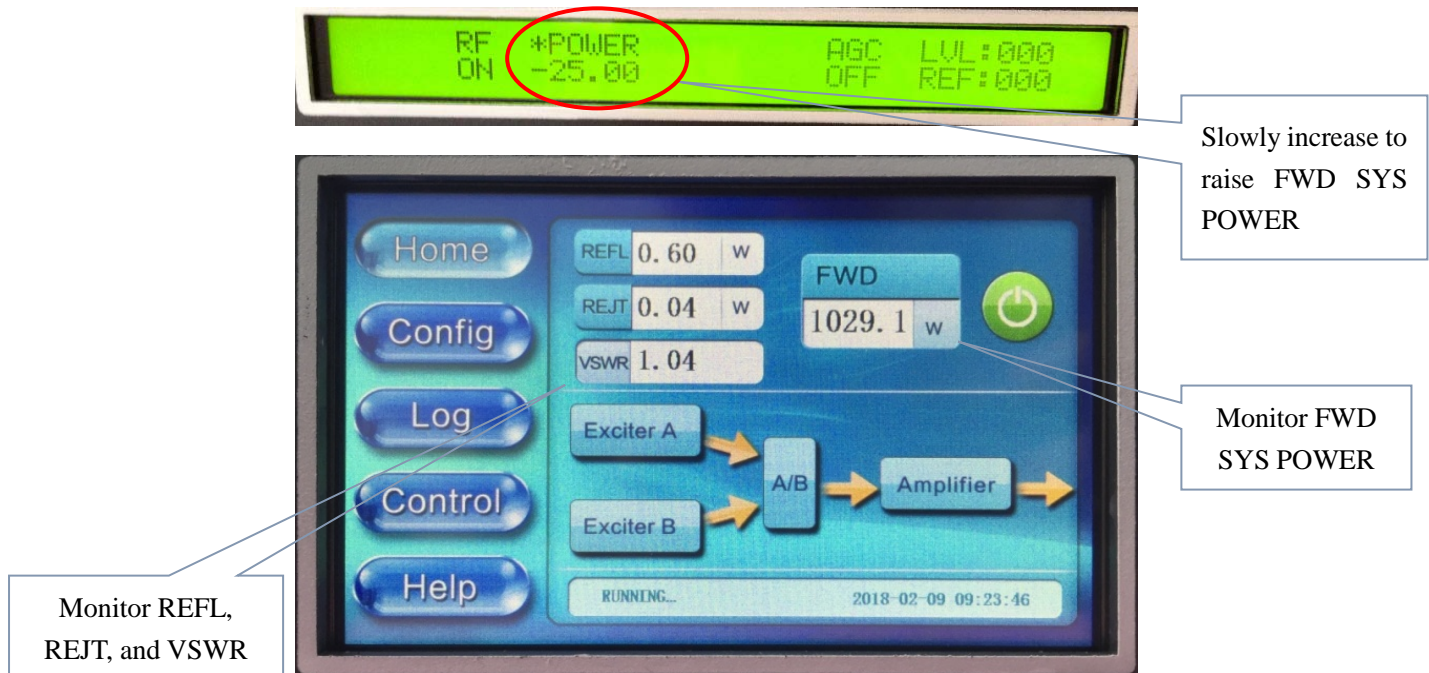


3. You are now ready to bring the TX up to power. To accomplish this, slowly increase the drive level out of the Exciter by increasing the POWER setting in the Exciter



RF submenu while watching the Sys FWD power increase accordingly on the Controller touchscreen.

Begin to slowly raise the FWD System power by using the UP button on the Exciter, while monitoring the FWD system power meter on the Controller HOME screen as shown below.



4. Slowly bring the FWD power to ~ half-power and notice the power meter values of REFL, REJT, and VSWR to be sure these look reasonable (less than the values of the TX operating at a full rated power (please reference your Factory Test Report for these values).

Check to be sure that the lower left corner of the HOME screen shows the status as “RUNNING OK!” and there are no alarm messages. If you do see an alarm message, please reference the Troubleshooting section of your transmitter User Manual to understand what the error means and suggested steps to correct it. (For example, when initially turning on a system, the error message AMP_VSWR_ERR (accompanied by high REFL power readings) may be witnessed - indicating a connection problem somewhere in the external RF System – a mismatch sending hi reflected energy back to the REFL sample on the output directional coupler inside the TX cabinet.)

5. Continue to slowly raise the FWD power until you reach the max power rating of the TX, or your lower desired TPO. Check to be sure that the PA device currents do not exceed the full power operating currents as shown in your Factory Test Report.



Also, be careful to make small increases in the value of Exciter POWER as you approach the desired TPO.

MHPTV Log out

COM STATUS		AMP1-RUN-PARA					
PRE-AMP PARA		FWD-POW	1021.76	W	REFL-POW	0.97	W
POST-AMP1 PARA		IN-POW	25.43	dBm	50V-VOL	49.83	V
POST-AMP2 PARA		AMP-TEMP	102.95	°F	VSWR	1.06	
POST-AMP3 PARA		50V-CUR1	5.05	A	50V-CUR2	4.8	A
POST-AMP4 PARA		50V-CUR3	5.29	A	50V-CUR4	5.04	A
POST-AMP5 PARA		50V-CUR5	5.44	A	50V-CUR6	5.2	A
EXCITER STATUS		50V-CUR7	5.32	A	50V-CUR8	4.62	A
NET&VERSION		50V-CUR9	3.94	A	CUR-TOTAL	44.7	A
SYSTEM-SET		FAN1-SPEED	5580	RPM	FAN2-SPEED	5520	RPM
COMMON-SET		FAN3-SPEED	5520	RPM	FAN4-SPEED	5520	RPM
POST-AMP-SET		FAN5-SPEED	5520	RPM	FAN6-SPEED	5520	RPM
ADVANCE-SET		FAN7-SPEED	0	RPM	FAN8-SPEED	0	RPM
LOG-INFO		FAN9-SPEED	0	RPM	FAN10-SPEED	0	RPM
		FAN11-SPEED	0	RPM	FAN12-SPEED	0	RPM

AMP1-ALARM-INFO

FWD-POW	OK	REF-POW	OK
IN-POW	OK	50V-VOL	OK
AMP-TEMP	OK	VSWR	OK
50V-CUR	OK		
FAN1	OK	FAN2	OK
FAN3	OK	FAN4	OK
FAN5	OK	FAN6	OK
FAN7	N/A	FAN8	N/A
FAN9	N/A	FAN10	N/A
FAN11	N/A	FAN12	N/A

Version

MCU	V1.3-180205
-----	-------------

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- Check the SNR and Shoulder (LIMD and UIMD) RF performance of your system by pressing the Exciter A icon on the Controller HOME screen or by checking the Exciter hi level LCD or web interface as shown below.





Digital Exciter

log out

Status

Setting

RF Control

TSID&PSIP

TSolP

SYS LOG

Status			
INPUT	TS1	STATUS	OK
AGC	OFF	TS_RATE	19.389568
TEMP	125.60°F	SYSERR	OK
TX FREQ	659	HZ(+/-50000HZ)	+0
FWD	76 %	SNR	34.0
LIMD	52.5	UIMD	53.0
CONTROL		REMOTE	

TUNER STATUS			
RX FREQ	653	RSSI	-87
RSNR	0	LOCK	UnLock ▼

PAC STATUS			
------------	--	--	--

Linear and Non-Linear corrections were performed and optimized at the TX rated TPO in the factory and so the stored correction coefficients should produce good results if you are operating at or close to the TX max output power.

If you are operating at a TPO less than the max rated TX power or wish to rerun corrections, please reference the “Running Corrections” section of your transmitter User Manual.

7. With your TX operating at your desired output power and with good RF performance, the next step is to engage the TX AGC.

Navigate to the AGC screen on the Controller (by pressing the CONFIG button and then the AGC button). Be sure the AGC Target FWD power is set your desired TPO but no higher than the TX max rated output power, and then press the unlit AGC button to engage the TX AGC and turn this button Green.

Home

Config

AGC

Rated Power: 1100 W

AGC

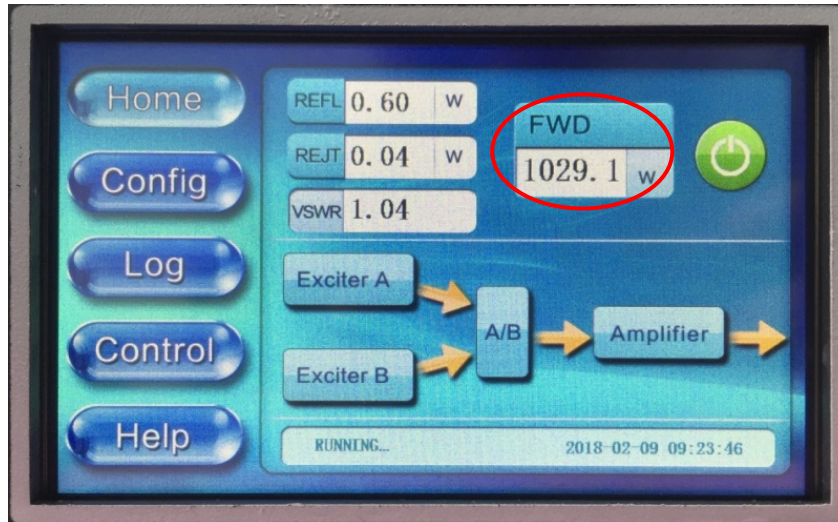
RUNNING... 2018-04-23 10:25:38

Set Target AGC Power to desired TPO

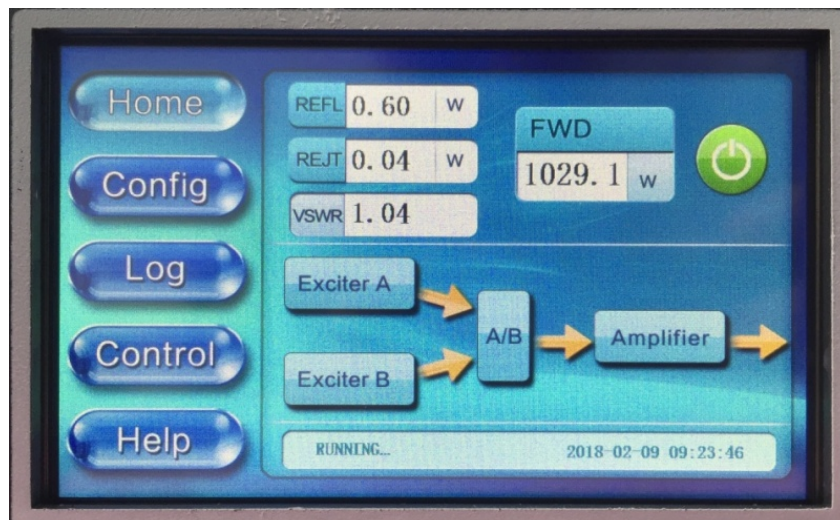
Press AGC button to turn AGC ON (will illuminate Green)



8. Press the HOME button to return to the HOME screen to monitor FWD power. With the AGC engaged, the FWD power metering may vary up to +/- 5%, so for a 1500W TPO, meter variations from 1425W to 1575W may be experienced.



9. For Dual Exciter TX configurations, test the Exciter switchover behavior by pressing the A/B icon on the Controller touchscreen and initiating an Exciter Changeover by selecting EXCITER B, and confirming the changeover when asked. The power will drop and the exciter changeover will initiate. Once again, allow 45 to 60 seconds for the transmitter to reach operating power. Make the same performance checks as just outlined for Exciter A.



10. Your TX should now be up and running properly into your load or on-air antenna. Continue to monitor system parameters as you allow the transmitter to warm up to temperature and stabilize at full output power for another 30 minutes.



11. To turn the TX On/Off, please use the TX On/Off button located on the HOME screen of the Control module or via the TX built in web interface. When turning the TX OFF and ON again, monitor the FWD power wattage on the HOME screen as FWD power ramps up to the AGC target level (45-60 seconds).
12. To Raise or Lower the TX output power level, please adjust the AGC target power setting under the Controller Config → AGC button. An alternative to this would be to disable the Controller AGC (set AGC-Status = Off) and raise/lower the Exciter output drive.

TX-STATUS-SET	
TX-SET	ON * [SET]

AGC-SET	
AGC-STATUS	OFF * [SET]
FWD-STANDARD	1000 [SET]

BOOT-SETTINGS	
BOOT-SET	OFF * [SET]
REPEAT-BOOT-TIME S	1 * [SET]

POST-AMP-NUM	
POST-AMP-NUM	5 * [SET]

CLEAR-ALARM-STATUS	
CLEAR-ALARM-STATUS	NO * [SET]

CONTROL-STATUS	
CONTROL-STATUS	LOCAL * [SET]

Set Target AGC to desired System Forward Power, Turn AGC ON/OFF

13. You may network your Transmitter Control Module (rear LAN connector, default ipaddress 192.168.1.210) and your Exciter (REMOTE RJ-45 rear panel connection at 192.168.1.143), and your PA drawers (front LAN port 192.168.1.200 – note – you will need to change some of the PA IPaddress (via the PA built-in web interface) to avoid network conflicts if putting all PAs on your network for remote monitor/control. All equipment ipaddresses are user configurable via their respective user interfaces, so they may be configured to match the TX sites specific ipaddressing scheme.

If you desire to have remote monitoring and control, before leaving the station, please be sure to set the Transmitter to REMOTE mode via the Controller CONTROL button setting and set the Exciter to REMOTE mode under the SYSTEM submenu by setting CTL=RMT. This will enable remote monitoring and control of the TX via its built-in web interfaces (refer to the 1KW TX and Exciter user manuals for details).



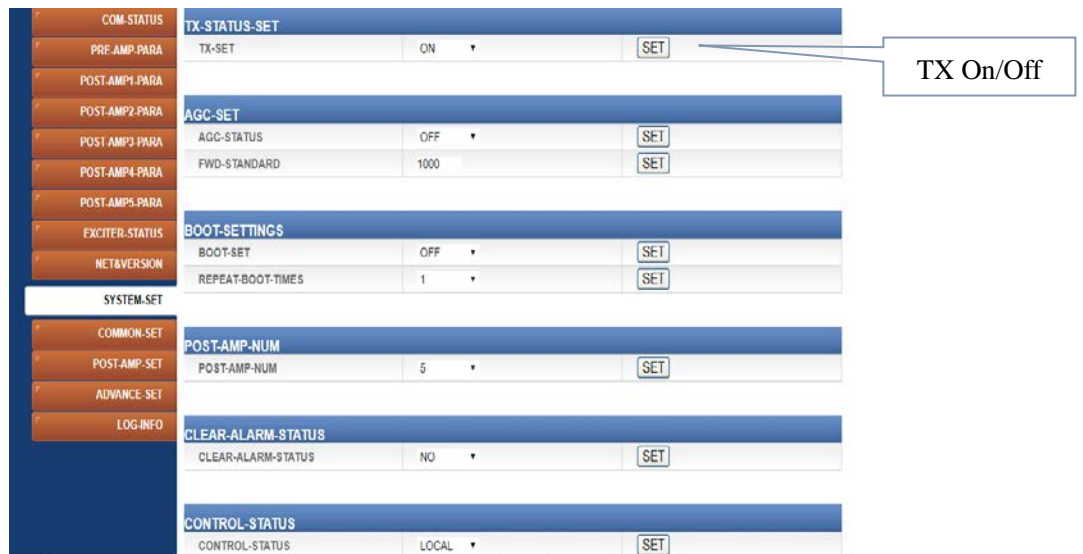
4. Operational Basics

4.1 TX ON/OFF

Local Control: To turn the TX On/Off, please use the TX On/Off button located on the HOME screen of the Control module. The Button will light Green when the TX is ON and RED when the TX is off. When turning the TX ON, please monitor the FWD power wattage on the HOME screen as FWD power ramps up to the AGC target level (which takes roughly 45-60 seconds).



Remote Control: To Turn the TX On/Off from the Controller Web Interface, please select ON or OFF for TX_SET on the SYSTEM-SET tab and press the SET button to the right (network to the Controller module via rear panel RJ-45 LAN connection, default ipaddress 192.168.1.210).



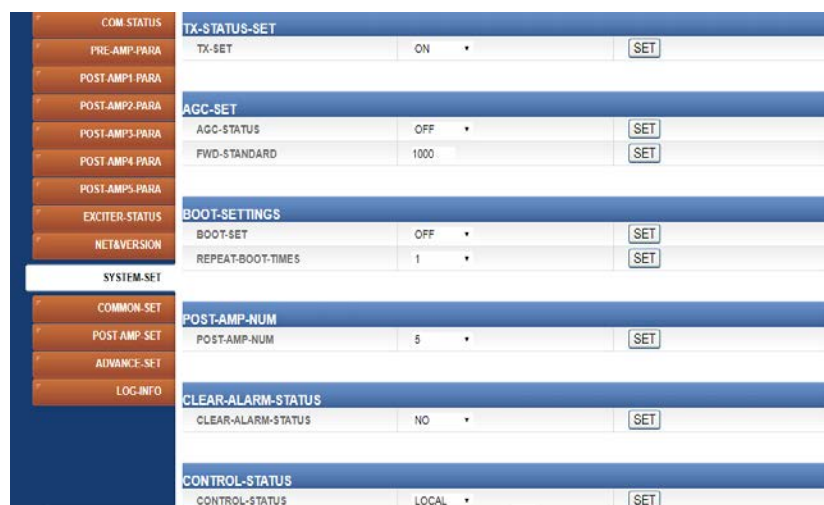


4.2 RAISE/LOWER POWER

Local Control: To raise or lower the TX system forward power, please adjust the target AGC power setting on the Controller AGC screen. Monitor the change in power via the Home screen FWD Power meter (which may take up to 60 seconds). Please not, as an alternative, you could disable the Controller AGC (Turn AGC Off) and raise/lower the Exciter output drive.



Remote Control: To raise or lower the TX system forward power from the Controller Web Interface, please adjust the target AGC power setting and press the SET button to the right (network to the Controller module via rear panel RJ-45 LAN connection, default ipaddress 192.168.1.210). Please note, as an alternative, you could disable the Controller AGC (AGC-Status = Off) and raise/lower the Exciter output drive.





4.3 RUNNING CORRECTIONS

Local Control:

This section guides you through the process of running Linear and Nonlinear Precorrection (You may also reference the Exciter User Manual for additional details and instructions on running corrections). If you are operating at reduced power you may wish to rerun corrections to achieve better RF performance.

Normal operation for the MPTV TX is to run with the Transmitter AGC enabled to compensate for slight variations in output power due to changes in temperature, AC mains, etc. It is not recommended to run corrections with AGC enabled, as the correction process can at times produce slight changes in output power.

1. Please navigate to the Controller AGC screen (by pressing the CONFIG button and then AGC button) and disable AGC by pressing the Green button (as shown below), so that the button then becomes transparent (blue). This indicates that AGC is OFF.



Press AGC button to turn AGC OFF (button becomes transparent = blue)

2. Adjust the Exciter POWER setting under the RF submenu to achieve the desired Forward System Power (1000W for example) as monitored on the Controller Home screen.





3. Before running corrections, it is important to verify proper feedback signal levels. There are two feedback signal samples used to compute corrections. “RF IN A” (After BPF) is used to calculate Linear correction coefficients while “RF IN B” (Before BPF) is used to compute the Non-Linear correction coefficients.
4. Navigate to the Exciter “DPD” submenu in the Advanced User menu (simultaneously press Left and Right buttons, then simultaneously press UP and Down buttons). Be sure the value of the Feedback Sample Signal Input (FSSI) for both A (after) and B (before) reads somewhere between 35% and 75% - which roughly corresponds to a value of -15 to -5 dBm as measured on a power meter (note: the FSSI indicator toggles between A and B and will “flash” when the signal level is out of range, too high or too low). Optimal FSSI level is typically ~ 50%. Add or remove the appropriate attenuator padding to achieve feedback signal levels in the desired range.

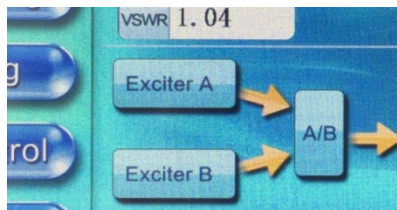


5. Check and set the value of PDT (correct time) (set to 5) and CFR (Crest Factor Reduction) (set to F) in the DPD Advanced Menu (above) (Note: CFR=F means NO CFR, CFR=0, means maximum CFR)
6. Navigate to the Exciter “SYSTEM” submenu and select UPDATE under ADPC then press the OK button to run corrections. The exciter will then proceed through 4 stages of correction, automatically computing Linear and Non-Linear corrections, and saving the coefficients into non-volatile memory upon completion. The correction process typically takes from 8-10 minutes to complete while real-time performance metrics of SNR and Shoulder performance are displayed on the Exciter LCD.





7. Check the SNR and Shoulder (LIMD and UIMD) RF performance on the front panel screen of the exciter or by pressing the Exciter Icon on the Controller HOME screen. (Change the value of CFR or rerun correction if necessary to obtain optimal performance).



8. With your TX operating at your desired output power and with good RF performance, the next step is to set up and re-engage the TX AGC. To accomplish this, be sure the TX system forward power is at, or just slightly higher than, the desired system TPO.
9. Navigate to the AGC screen on the Controller (by pressing the CONFIG button and then the AGC button). Be sure the AGC Target FWD power is set to desired TPO and then press the unlit AGC button to engage the TX AGC and turn this button Green.



Set Target AGC Power to desired TPO

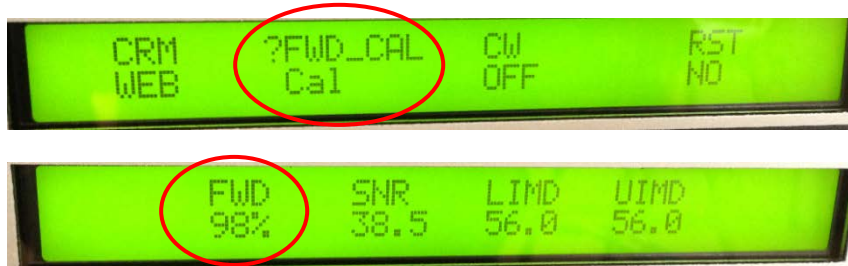
Press AGC button to turn AGC ON (will illuminate Green)



10. Press the HOME button to return to the HOME screen to monitor FWD power. With the AGC engaged, the FWD power metering may vary up to +/- 5%, so for a 1000W TPO, meter variations from 950W to 1050W may be experienced.



11. On the Exciter, navigate to the CAL setting under the AD3 Advanced submenu and select CAL then press OK to calibrate the FWD PWR meter on the Exciter front panel to ~ 100%.



Please note that the Exciter FWD PWR meter reading is based on the RF_IN_A BNC feedback sample on the rear panel of the Exciter and is only available when this sample is connected and in the proper signal level range ($35\% < \text{FSSI A} < 75\%$).

12. You have completed running Linear and Non-Linear corrections on your TX.



4.4 CALIBRATE EXCITER FWD POWER METER

On the Exciter, navigate to the CAL setting under the AD3 Advanced submenu and select CAL then press OK to calibrate the FWD PWR meter on the Exciter front panel to ~ 100%.



Please note that the Exciter FWD PWR meter reading is based on the RF_IN_A BNC feedback sample on the rear panel of the Exciter and is only available when this sample is connected and in the proper signal level range (35% < FSSI A < 75%).



4.5 CALIBRATE TX SYSTEM POWER METERS

Local Control: There are three TX system power meters located on the Controller HOME screen, Forward (FWD), Reflected (REFL), and Reject Load (REJT). These power meters were calibrated at the factory to provide accurate power readings when testing the TX at its full rated output power. These meters may be recalibrated if desired via the Controller calibration screens as outlined below.



You will require a power meter to independently measure power at the Controller input samples in order to properly calibrate the built-in system FWD, REFL, and REJT power meters. Please reference the TX System Interconnect Diagrams in section 3 of this manual for connection details.



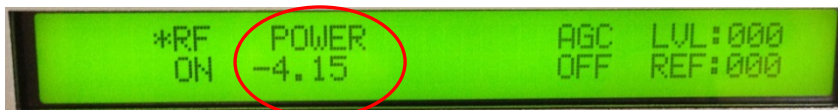
Normal operation for the MPTV TX is to run with the Transmitter AGC enabled to compensate for slight variations in output power due to changes in temperature, AC mains, etc. It is not recommended to perform power meter calibration with AGC enabled.

1. Please navigate to the Controller AGC screen (by pressing the CONFIG button and then AGC button) and disable AGC by pressing the Green button (as shown below), so that the button then becomes transparent (blue). This indicates that AGC is OFF.



Press AGC button to turn AGC OFF (button becomes transparent = blue)

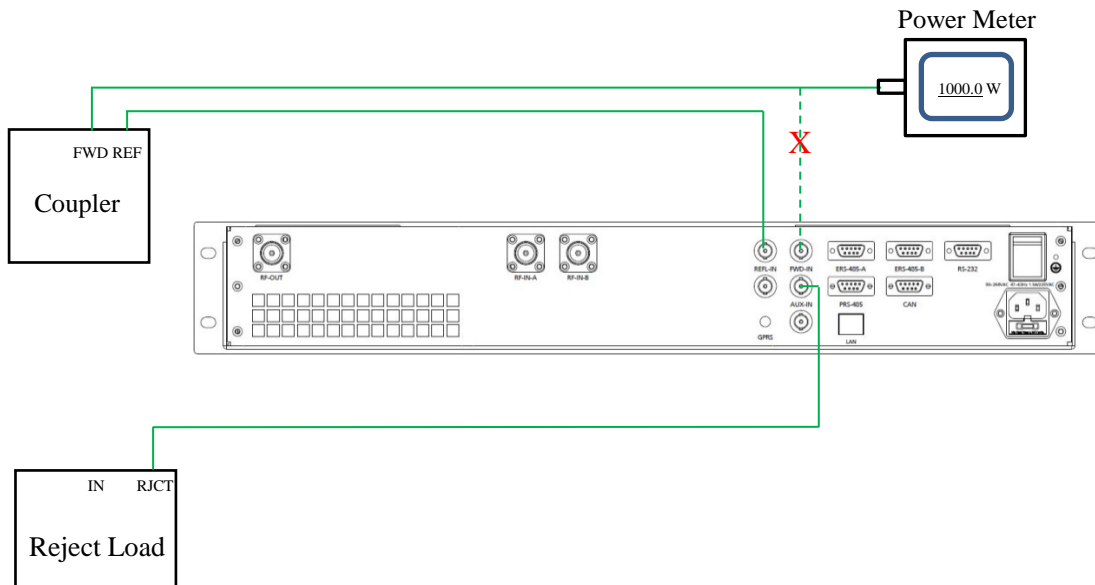
2. Adjust the Exciter POWER setting under the RF submenu to achieve the desired Forward System Power (1000W for example) as monitored on the Controller Home screen.



System FWD power meter



3. Disconnect the FWD IN sample from the rear panel of the Controller and connect this to your power meter. This sample comes from the TX output directional coupler and has a coupling value of 50dB (offset for your power meter). Measure and record the real Forward system power.

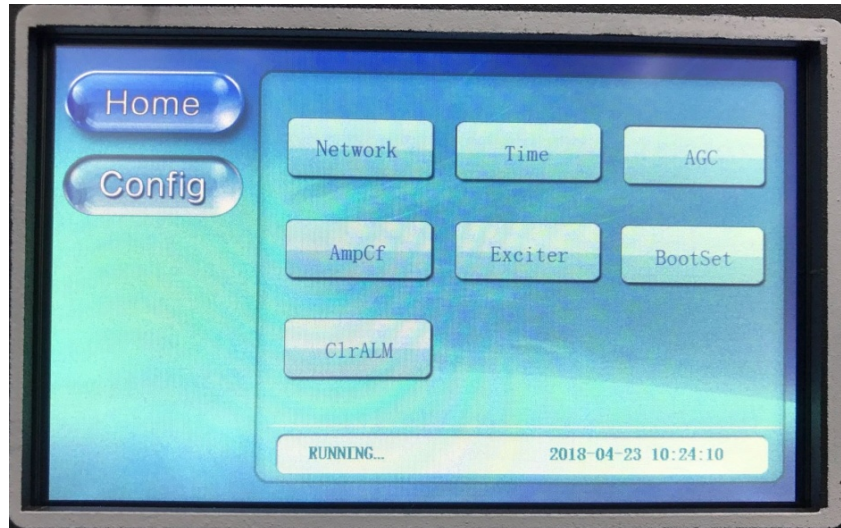


4. Disconnect the FWD sample from your power meter and reconnect it to the FWD IN port on the rear panel of the Controller.
5. Monitor the FWD power meter on the Controller HOME screen and notice if it reads higher or lower than your recorded power meter reading.





6. Navigate to the TX meter Calibration screen on the Controller by pressing the CONFIG button and then selecting AmpCF (Amplifier Configuration)



The AmpCF screen is used to configure advanced settings of the TX System and PAs, and is locked with a password. When pressing the “AmpCf” button in the Config Menu, a pop-up window requiring a password will appear. Please enter the “AmpCf” password “27654” and then press “OK”.



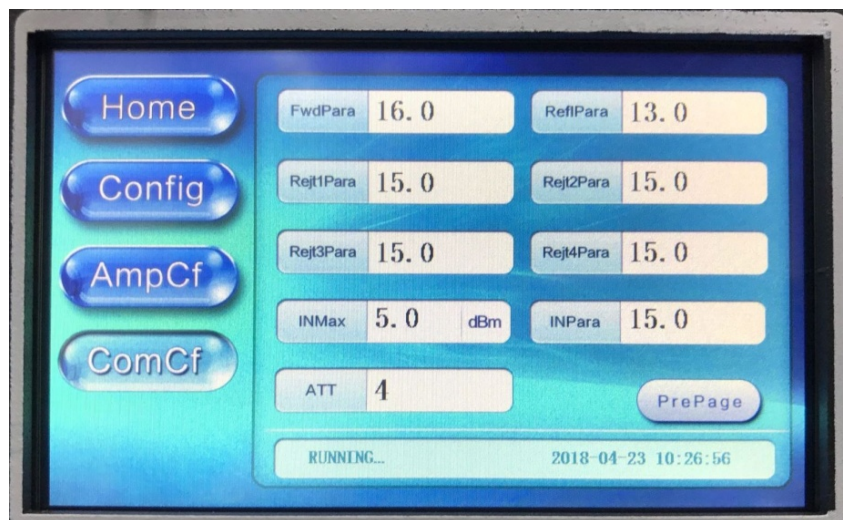
With the password properly entered, the AmpCf configuration screen will appear, as shown below. Press the ComCF button.



The ComCF screen is used to configure the TX maximum operating thresholds to engage safety and protective power reduction and shutdown mechanisms. Press the NextPage button to reach the FWD, REFL, and REJT power calibration screen below.



7. Press the word FwdPara to slightly adjust this value up or down (in small increments 0.1, 0.2, etc.) until the FWD power meter reading on the Controller HOME screen (also available via the Controller Web interface: RJ-45 LAN default IPaddress 192.168.1.210) agrees with the value of forward power you recorded from your power meter measurement.



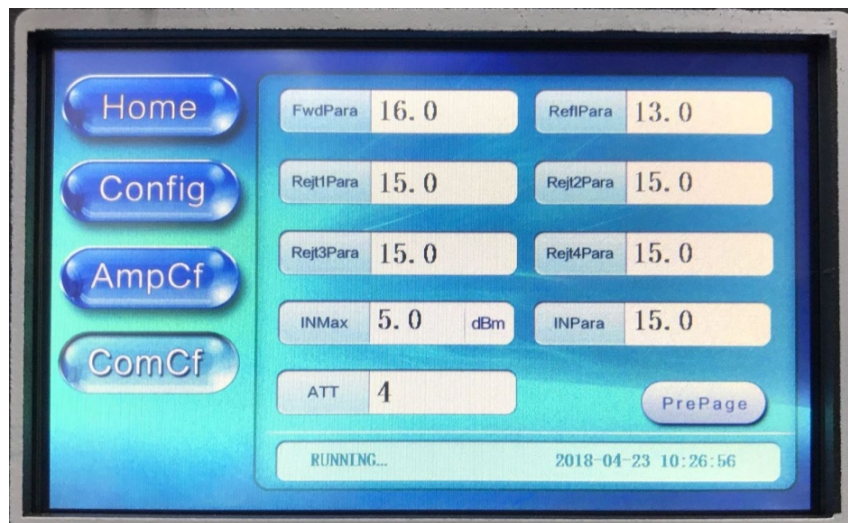
Calibration for
FWD power
meter (FwdPara)

8. Please note: the above FWD power meter calibration (and below Reflected and Reject meter readings) may alternatively be adjusted and calibrated via the Controller Web interface (192.168.1.210) Common-Set Tab instead of the Controller front panel touchscreen – as shown below.

COM-STATUS		COM-AMP-PARA-SET									
PRE-AMP-PARA		FWD-MAX	1500	W	SET	FWD-PARA	12.9	SET			
POST-AMP1-PARA		REFL-MAX	100	W	SET	REFL-PARA	16	SET			
POST-AMP2-PARA		IN-MAX	5	dBm	SET	IN-PARA	16.3	SET			
POST-AMP3-PARA		REJT1-MAX	100	W	SET	REJT1-PARA	15	SET			
POST-AMP4-PARA		REJT2-MAX	100	W	SET	REJT2-PARA	15	SET			
POST-AMP5-PARA		REJT3-MAX	100	W	SET	REJT3-PARA	15	SET			
EXCITER STATUS		REJT4-MAX	100	W	SET	REJT4-PARA	15	SET			
NET&VERSION		VSWR-MAX	2		SET	ATT	4	SET			
SYSTEM-SET											
COMMON-SET											
POST-AMP-SET											
ADVANCE-SET											
LOG-INFO											

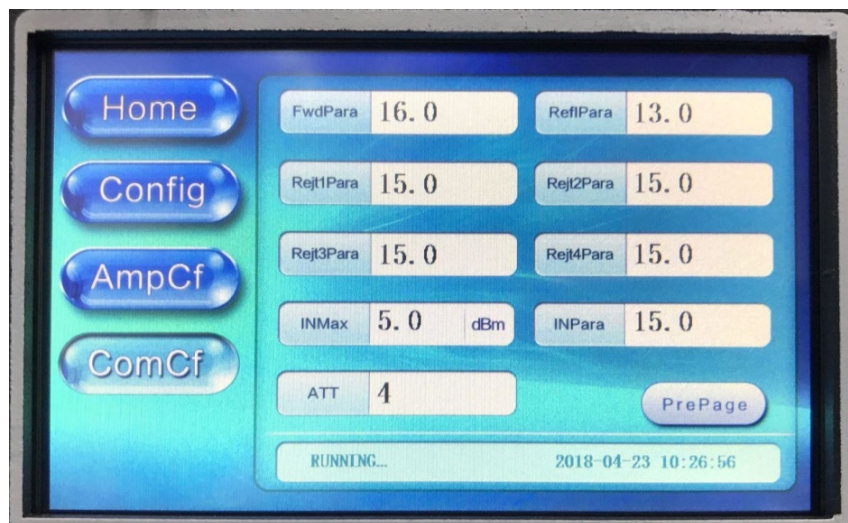
Calibration for
FWD power meter
(FWD-Para)

9. Repeat steps 3 through 7 above, this time removing, measuring, and returning the REFL IN sample to calibrate the Reflected system power meter by adjusting the value of RefPara below.



Calibration for
REFL power
meter

10. Repeat steps 3 through 7 above, this time removing, measuring, and returning the RJCT IN sample to calibrate the Reject Load system power meter by adjusting the value of Rejt1 below.



Calibration for
RJCT power
meter

11. With your TX operating at your desired output power and with accurately calibrated system power metering, the next step is to set up and re-engage the TX AGC. To accomplish this, slightly adjust (if necessary) the value of POWER in the Exciter RF submenu to desired TPO.



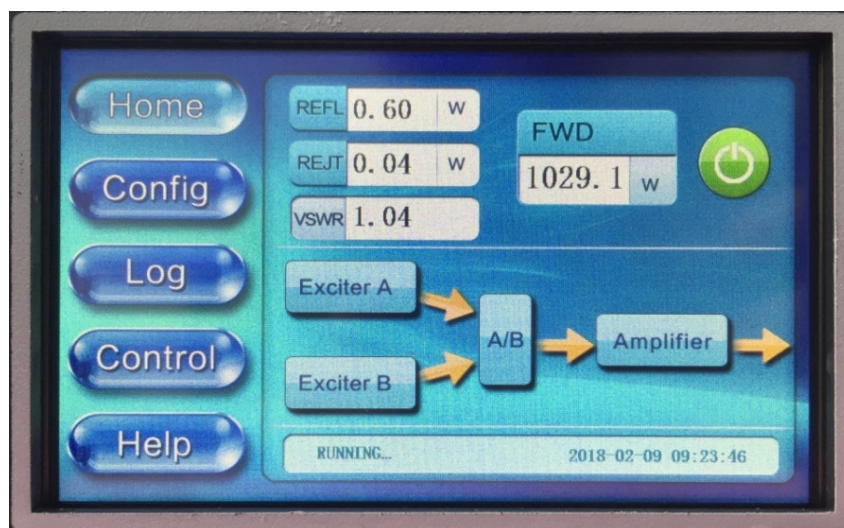
12. Navigate to the AGC screen on the Controller (by pressing the CONFIG button and then the AGC button). Be sure the AGC Target FWD power is set to desired



TPO level and then press the unlit AGC button to engage the TX AGC and turn this button Green.



13. Press the HOME button to return to the HOME screen to monitor FWD power. With the AGC engaged, the FWD power metering may vary up to $\pm 5\%$, so for a 1000W TX, meter variations from 950W to 1050W may be experienced.

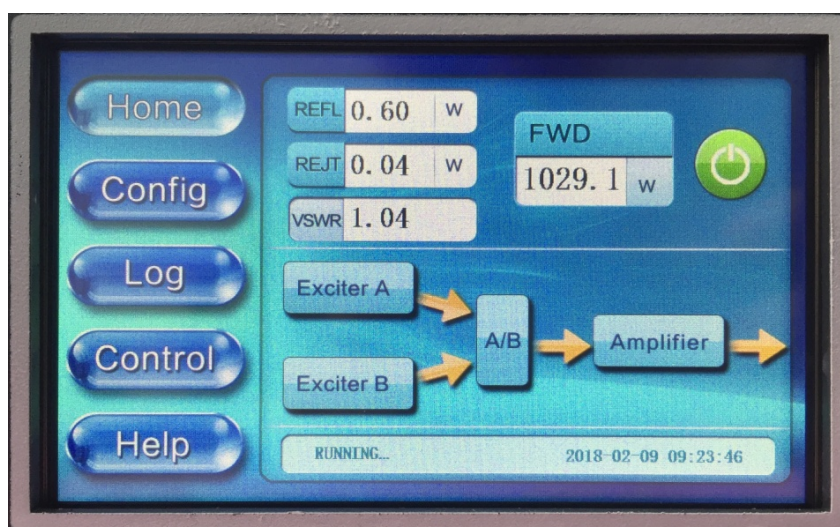




5. Local (Touch Screen) User Interface

5.1 HOME SCREEN

Turn on the power supply and the TX enters the initialization process, and after 5 seconds, the TX enters the home screen (as shown below).



The home screen is divided into 4 parts: Title Bar (left column), Power Metering (upper right), Block Diagram (middle right) and Status Bar (lower right), as shown below.

- **Title Bar:** Shown in the picture above, the “Home” button is highlighted, indicating the Home screen is now displayed. This TX Control Unit screen is a touch screen. You may navigate to the other screens (Config, Log, Control, Help) by simply touching the corresponding button in the Title Bar.
- **Power Metering**
 - **ON/OFF (Green) Button :** Provides TX ON/OFF control. When GREEN (as shown above), this indicates the TX is ON. When RED, this indicates the TX is OFF.
Note: When there is an alarm, this button is always RED.
 - **FWD:** Forward Power Meter. Touching the white display box of FWD will toggle its display units between “dBm” and “W”.
 - **REFL:** Reflected Power Meter. REJT” in the “Home” screen shows the value of rejected power. Press the white box beside the “REJT” button, to enter a screen showing all rejected power values. 1-PA TX has no reject load. 2-PA TX has 1 reject load. 3-PA system has 2 reject loads. 4-PA TX



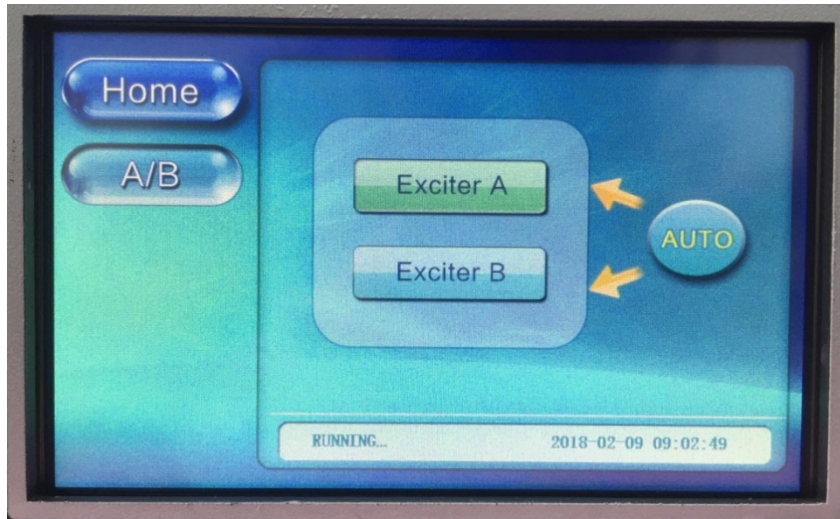
has 3 reject loads. 5-PA TX has 4 reject loads. If there is more than one “REJT” value, the “REJT” value in the HOME screen will show the highest one (the one which is the closest to the preset threshold).

- VSWR: Voltage Standing Wave Ratio
 - REJT: This is the system Reject Load Power Meter, derived from the REJT Load feedback sample. Displayed in units of “W” and cannot be changed.
- **Status Bar:** During normal operation, the default status is “RUNNING OK”. If there is any alarm, the alarm will show up in the Status Bar of each screen.
- **Block Diagram:** Press the “Exc A/B” graphic to navigate to the Dual Exciters Switching screen (shown below). This screen shows which exciter is currently on-air (highlighted GREEN) and allows the user to manually change the on-air exciter.



5.2 A/B EXCITER ICON SCREEN

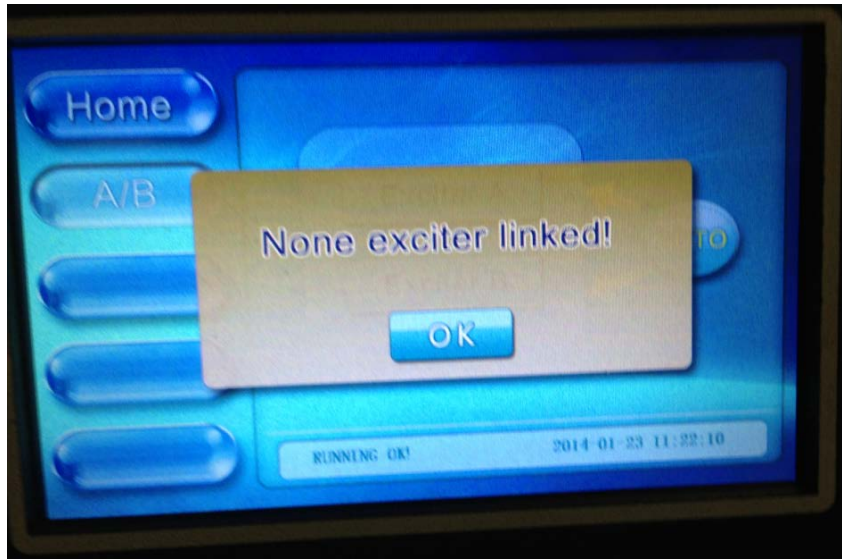
Dual Exciters - Switching Screen: As mentioned above, pressing the “Exc A/B” icon will bring you to the Dual Exciters Switching Screen, as shown below.



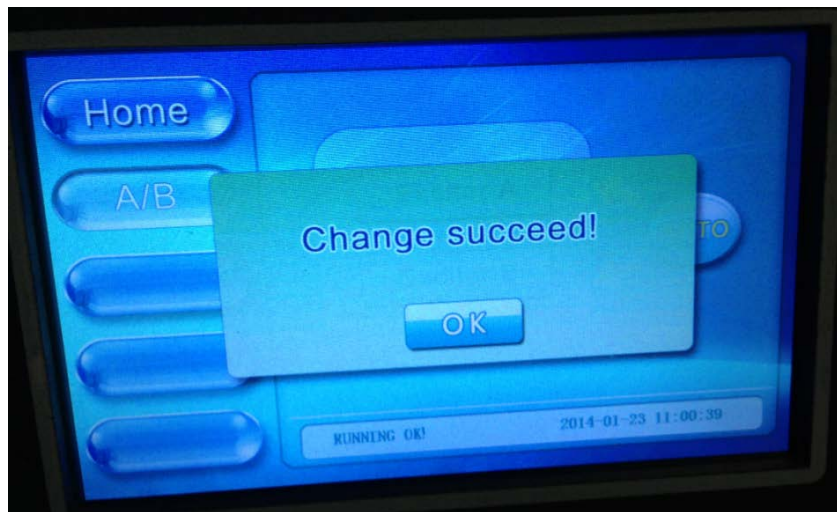
Manual Exciter Switchover: Exciter A is the default on-air exciter. The on-air exciter's status will be “GREEN”, as shown in the screen above, indicating that Exciter B is the current on-air exciter. Pressing the “Exciter A” or “Exciter B” button on this screen will cause a manual switch between exciters, that is if the Controller is “linked” to both exciters. (Note: In a dual exciter configuration, both exciters are on at the same time, producing an RF output signal at the same time, and the Controller is considered “linked” with an exciter when the Controller detects an RF output present from the exciter as monitored inside the controller).

- Auto Exciter Switchover: In a Dual Drive configuration, the TX is set to automatically switch to the standby exciter in the event a problem occurs with the on-air exciter. The TX will not automatically switch back to the original Exciter as long as the standby Exciter is operating properly. However, the TX will automatically switch back to the original Exciter in the event of a problem with the on-air (standby) exciter. So the TX will continue to automatically switch to the standby exciter in the event of a problem with the on-air exciter.

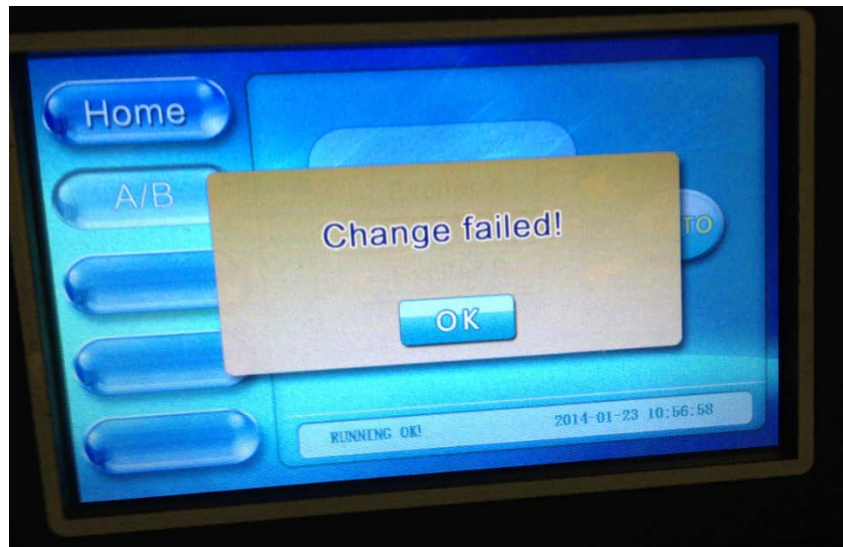
If neither of the exciters can be linked successfully (i.e. the Controller does not detect a valid RF output present from either exciter), a window will pop up, indicating “No Exciter Linked”, as shown below.



- If the manual switching is successful, a window will pop up indicating “Change succeed!”, as shown below.



- If the manual switching is not successful, a window will pop up indicating “Change failed!”, as shown below.



Please note that the Exciter(s) communicates via a RS-485 bus to the Transmitter Control module. In a single drive TX, the Exciter will be configured with an RS-485 address ID of 80H (as found under the Exciter CONFIG submenu) corresponding with Exciter A. In a dual drive TX, Exciter B will be configured with an RS-485 ID of 81H.

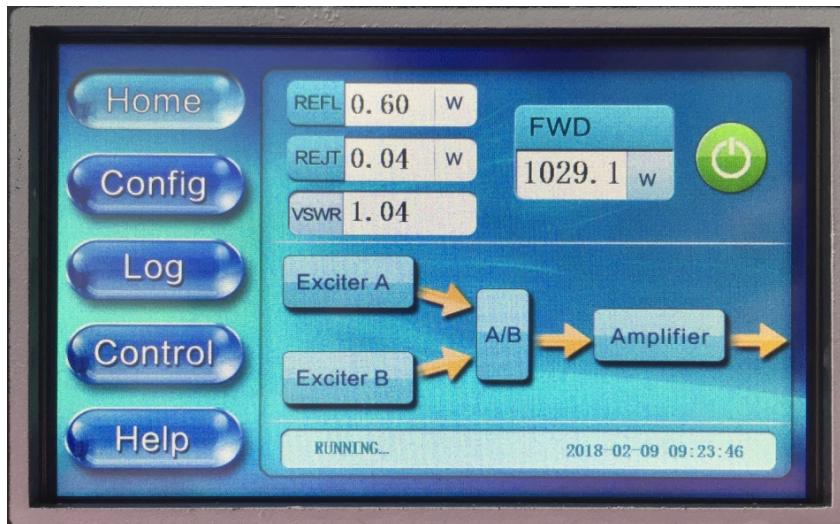
Pressing the Exciter A or Exciter B button will bring up a window displaying the Exciter Channel Frequency and well as the TX System SNR and Upper and Lower Shoulder metrics. Please note: only the on-air exciter has valid readings.



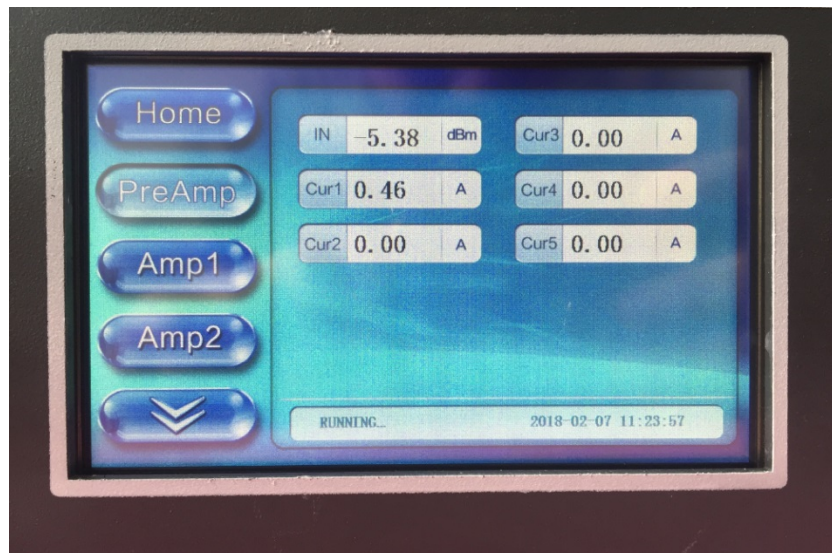


5.3 AMPLIFIER ICON SCREEN

Amplifier Status Screens: As mentioned above, pressing the “Amplifier” icon on the Home page, will navigate to the Amplifier Status Screens.



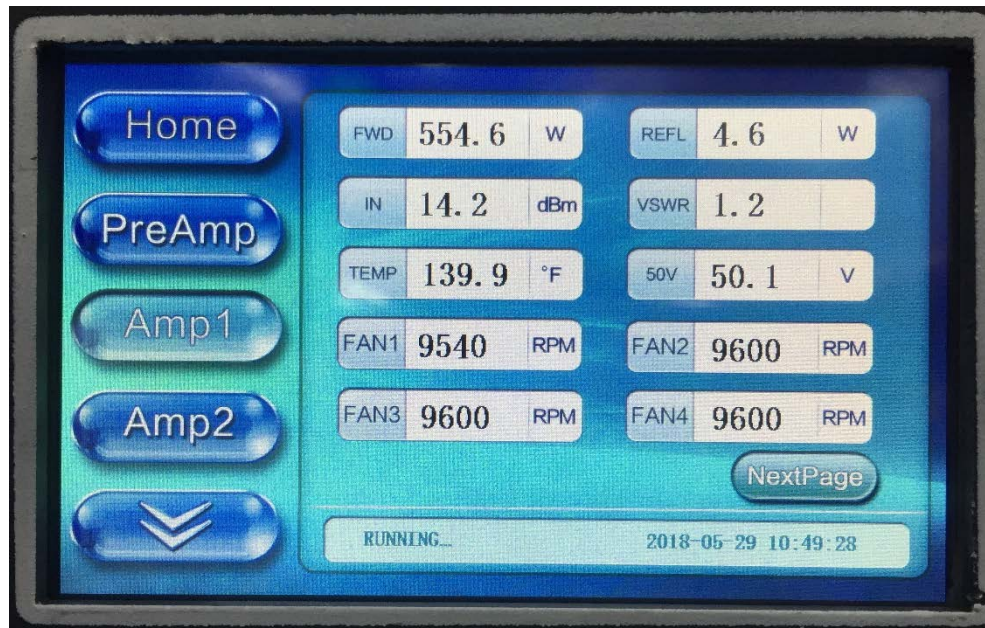
- Title Bar: includes “PreAmp”, “Amp1”, “Amp2”, (“Amp3 and more buttons are for higher power transmitters in the MPTV product line).
- PreAmp Status Screen

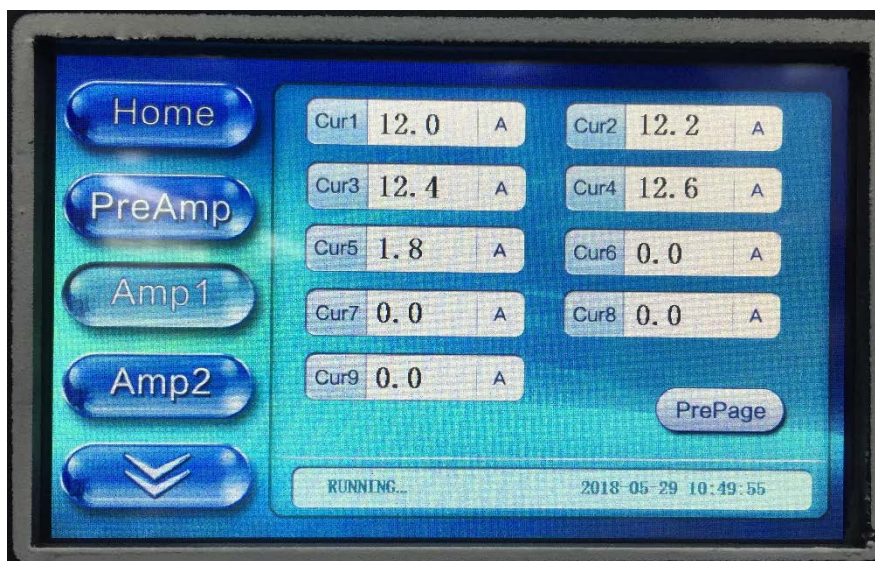


- IN: Input Power reading of the current preamp
- Cur1~Cur6: Currents of the current preamp



➤ Amp1 Status Screen



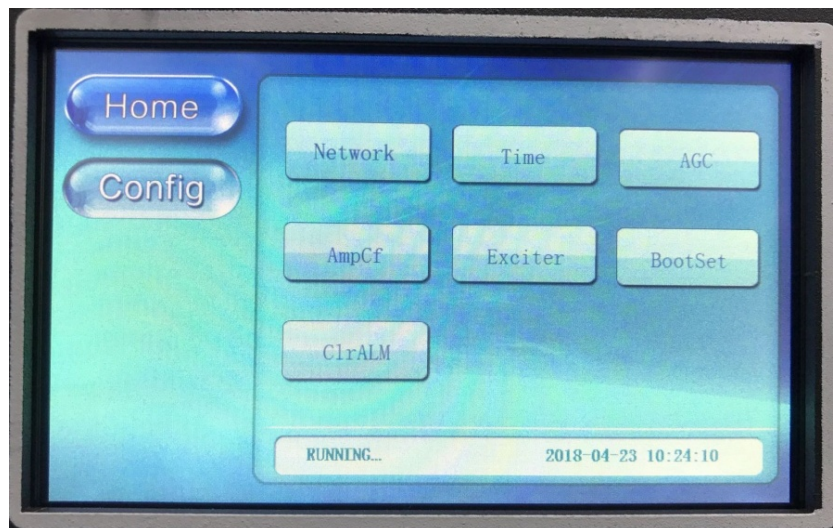


- Fwd: Forward Power reading of the current amplifier
- Refl: Reflected Power reading of the current amplifier
- IN: Input Power reading of the current amplifier
- VSWR: Voltage Standing Wave Ratio
- Temp: Temperature of the current amplifier
- V50: Reading of 50 V power supply of the current amplifier
- Fan1~Fan12: Fans' RPM of the current amplifier
- Cur1~Cur9: Currents of the current amplifier



5.4 CONFIG SCREEN

Touching the Config button on the Title Bar of the Home Screen, will navigate to the Config Screen, as shown below. The Config Screen has seven functional sections on the right. Press any of these buttons to navigate to that config screen. The Network screen is used to configure all the TX networking parameters including IP, Mask, and Gateway. The Time screen is used to set the current time. The AGC screen is used to turn the Controller AGC On/Off and to change the target AGC output power level. The AmpCf screen is for configuring the PA settings, including FWD and REFL fault threshold settings, and power meter calibrations. The Exciter screen provides Dual or Single Drive Exciter selection. The BootSet screen establishes how many times the TX attempts to reboot itself on power loss or fault conditions. The ClrALM screen allows the user to clear any previous alarms. Please Note: Modifying factory default configurations of certain parameters may lead to potential damage of the transmitter.





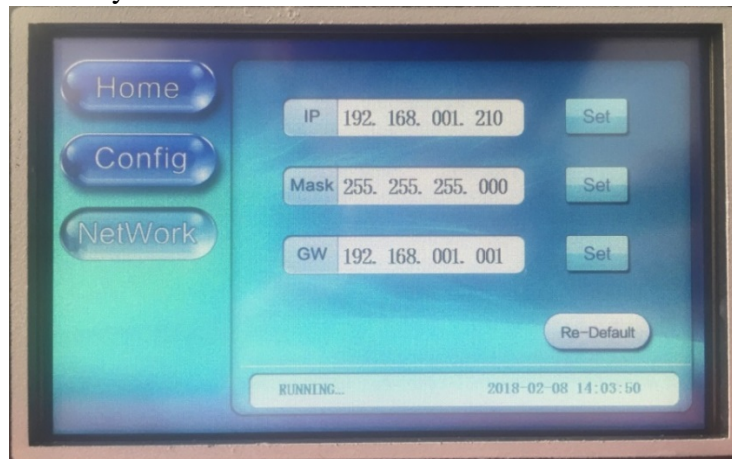
Network Screen: The User can check and set all the Contoller network information in this screen.

- Re-Default: Reset Default settings - This button is used to set all the network settings to the default values, as show below:

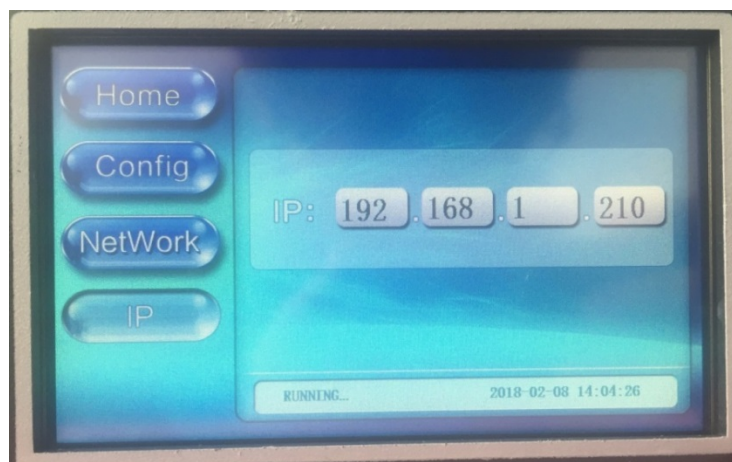
IP: 192.168.1.210

MASK: 255.255.255.0

GateWay: 192.168.1.1

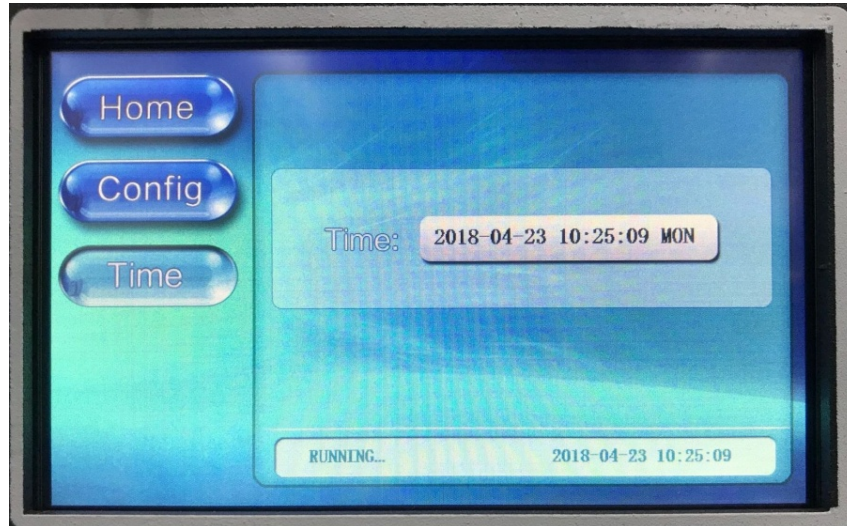


- Set: There is a Set button for each bar in this screen. Pressing the Set button will lead to the corresponding configuration screen of IP or Mask or GateWay accordingly. Using the IP setting as example, Press any part of the white bar on the IP Setting Screen and the keyboard (shown below) will be enabled, turing from grey to yellow. The user can only set 3-digits of one bar at a time. When the configuration is finished, press OK to confirm. If the keyboard is enabled by mistake, press Cancel to exit the setting mode. Don't press Ok without entering a valid number, otherwise the system will fill it with all zeros instead.





Time Screen: This screen is used to check and adjust the current time settings. It's similar to the Network Settings.



AGC Screen: This screen is used to set the AGC Reference output power of the TX and to turn the Controller AGC ON/OFF. Press the AGC button to turn AGC ON (button will turn green).





AmpCf Screen: This screen is used to configure advanced settings of the TX PAs. The AmpCf screen is locked with a password. When pressing the “AmpCf” button in the Config Menu, a pop-up window requiring a password will appear. The password for “AmpCf” access is “27654”.

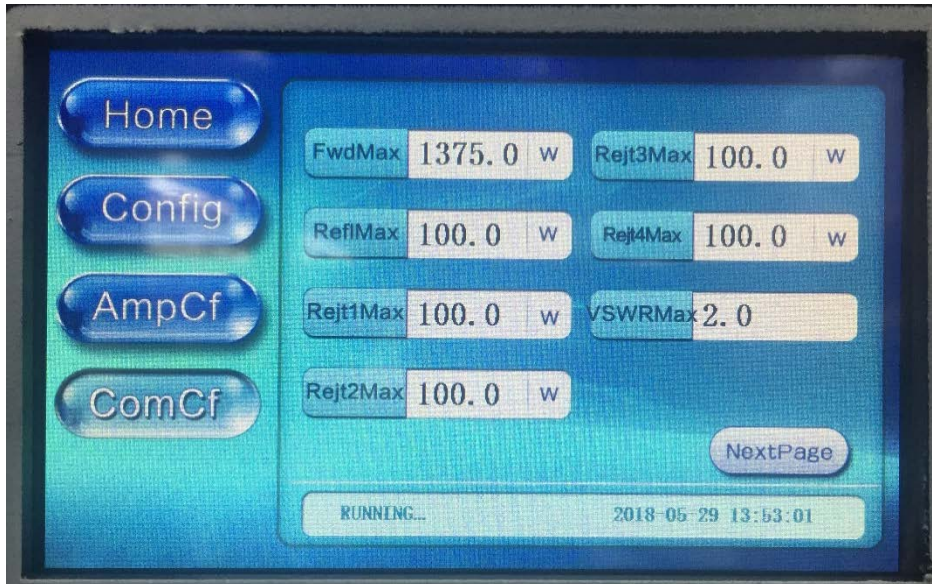


With the password properly entered, the AmpCf configuration screen will appear, as shown below.



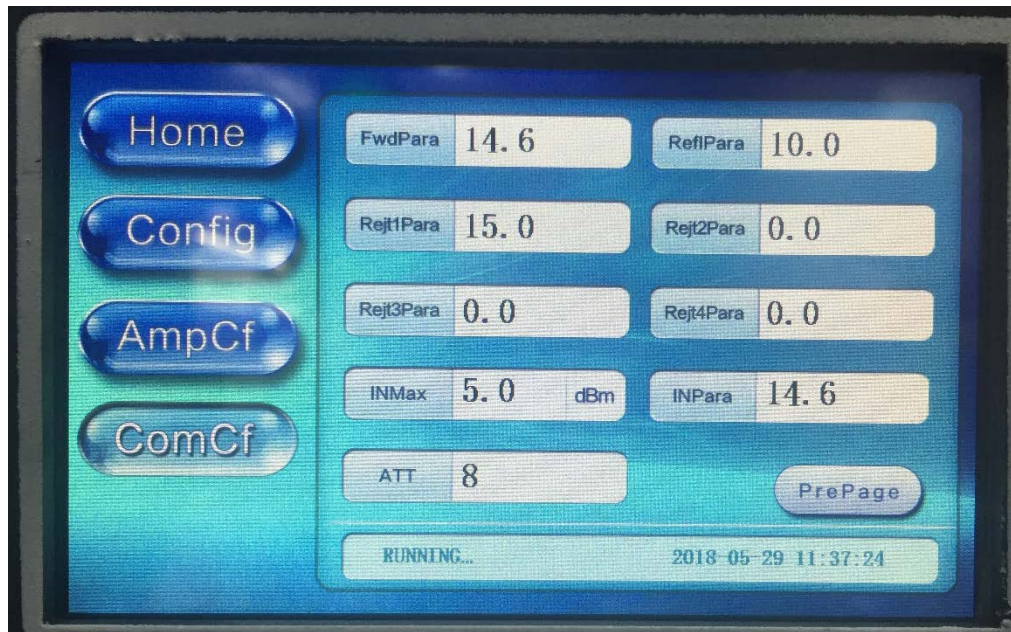


ComCf Screen: This screen is used to configure the TX maximum operating thresholds to engage safety and protective power reduction and shutdown mechanisms.



- FwdMax: Max TX Forward Power fault threshold
- ReflMax: Max TX Reverse Power fault threshold
- Rejt1-4Max: Max TX Reject Load fault threshold
- VSWRMax: Max TX VSWR fault threshold

(Note: Press the word FwdMax, ReflMax, etc. to see a pop-up screen to modify these settings. Warning – changing these settings may cause improper TX operation, damage, and shutdown of the Transmitter System).



- FwdPara: Adjust to calibrate the main screen FWD Power Metering
- ReflPara: Adjust to calibrate the main screen Refl Power Metering
- Rejt1-4Para: Adjust to calibrate the Rejt 1-4 Power Metering

(Note: Press the word FwdMax, ReflMax, etc. to see a pop-up screen to modify these settings. Warning – changing these settings may cause improper TX operation, damage, and shutdown of the Transmitter System).

PosID Screen: This screen is used to configure and/or test the RS-485 communications between the Control module and each of the PA modules. **With the TX Turned OFF** and with a single PA connected (PA AC mains switched on and 485 serial connection established between the PA and Controller), PosID can be used to verify proper communications between each PA and the Control Module. With only PA#1 physically connected to the Control Module, pressing the Query button should return a value of 130. With only PA#2 physically connected, pressing the Query button should return a value of 131.



PosID Screen: Note: The PosID of each PA can be accessed and modified via the PA built-in LAN interface (192.168.1.200). Networking directly to the PA and pressing the System Set tab will bring up the following information. Here you can view and change the SYS_ID for the PA (Note: SYS_ID for PA1=130, PA2=131, PA3=132, PA4=133, PA5=134, PA6=135, PA7=136, PA8=137).

STATUS			
SYSTEM SETTINGS			
NETWORK SETTINGS			
LOG INFO			
Anywave Communication Copyright 2017 Tel: +1(847) 415 2258			

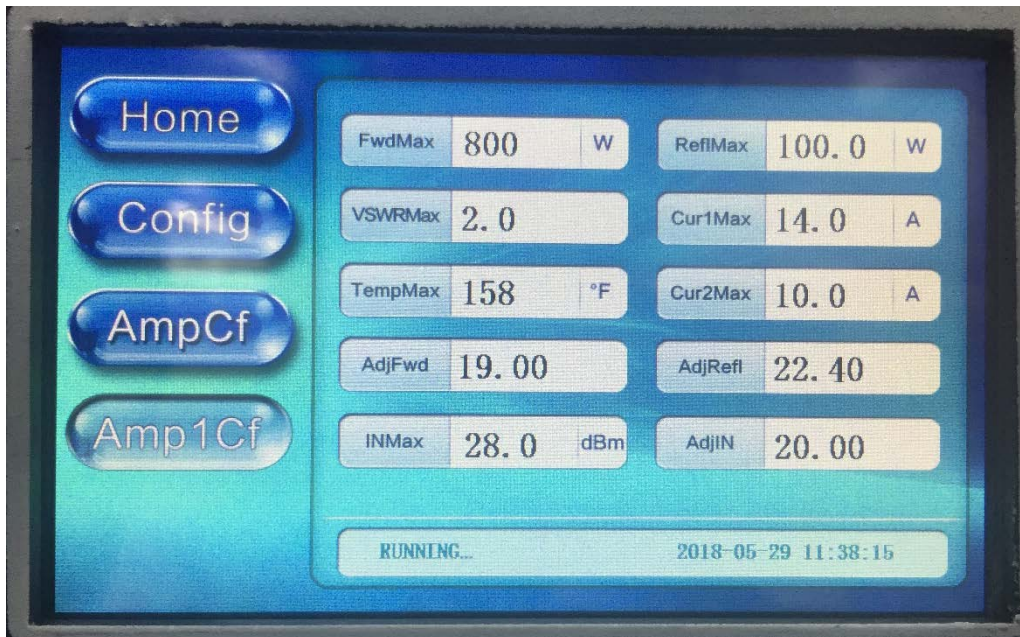
HARDWARE-PARA			
FWD-ADJ	18.5	REF-ADJ	20.4
IN-ADJ	12.8	SYS_ID	130
FAN_NUM	6		
<input type="button" value="SET"/>			

ALARM-PARA			
FWD-MAX	1635 W	REFL-MAX	100 W
VSWR-MAX	2	50VCUR-MAX	8.5 A
TEMP-MAX	140 °F	IN-MAX	28 dBm
TEMP-TARGET	115 °F		
<input type="button" value="SET"/>			

PROTECT-PARA			
FWD-PRO	2500 W	REFL-PRO	150 W
IN-PRO	32 dBm	TEMP-PRO	212 °F
<input type="button" value="SET"/>			

RTC-PARA			
RTC-DATE	2018 Y 2 M 7 D	RTC-TIME	9 H 39 M 23 S
<input type="button" value="SET"/>			

AmpxCf Screens: These screens are used to configure the Maximum PA operating thresholds to engage safety and protective power reduction and shutdown mechanisms.



Exciter Screen: This screen is used to configure the TX for single or dual exciters.

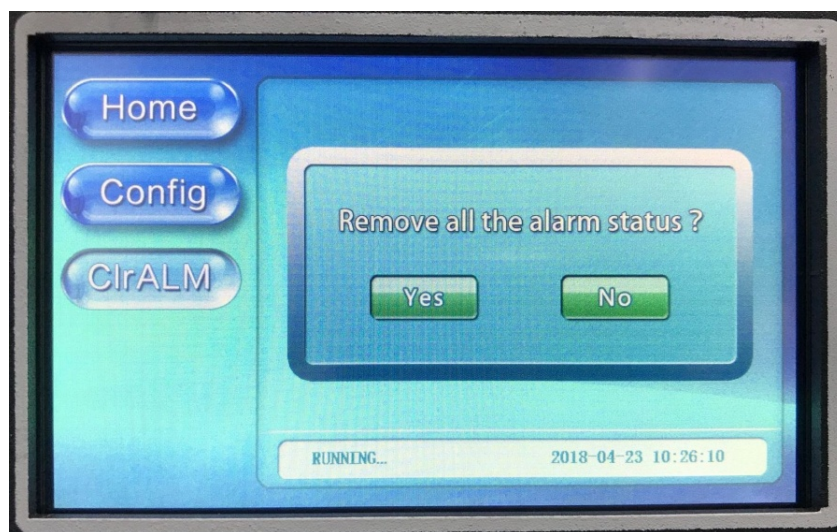


Bootset Screen: This screen is used to configure the number of attempts that the TX takes to successfully reboot on a shutdown condition, after which it gives up and remains off-air.



ClrALM: This is the Clear Alarm screen which is used to clear all alarms.

In LOCAL MODE, press the ClrALM button and a window pops out as below. Press Yes to clear all the alarms and restore the rated power. Alarms will not clear if they are currently active.

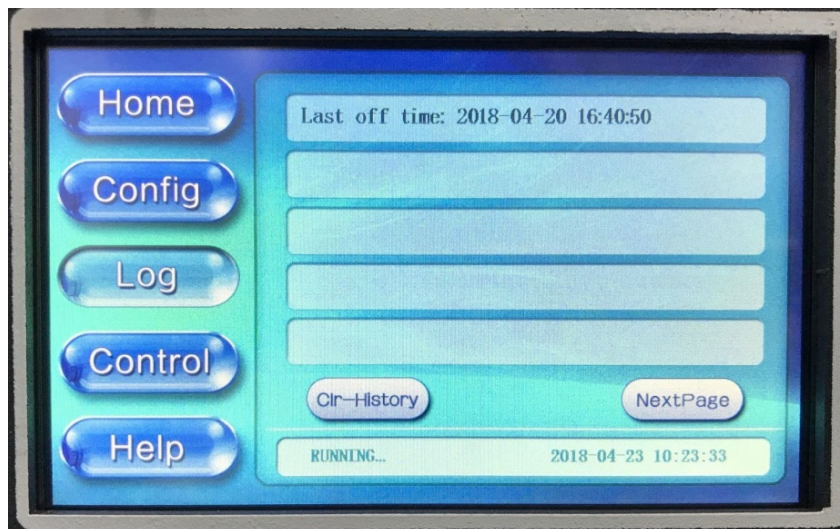




5.5 LOG SCREEN

Pressing the Log button on Title Bar in the Home Screen will navigate to the Log Screen, as shown below. There are two pages of current alarm information as well as history alarms. Each page can show up to 5 alarm messages. The user can use the NextPage/PrePage button to switch between pages.

Please note: the Del-History button is used only to clear the status history of alarms. It will not clear any current active alarms which may require user intervention.





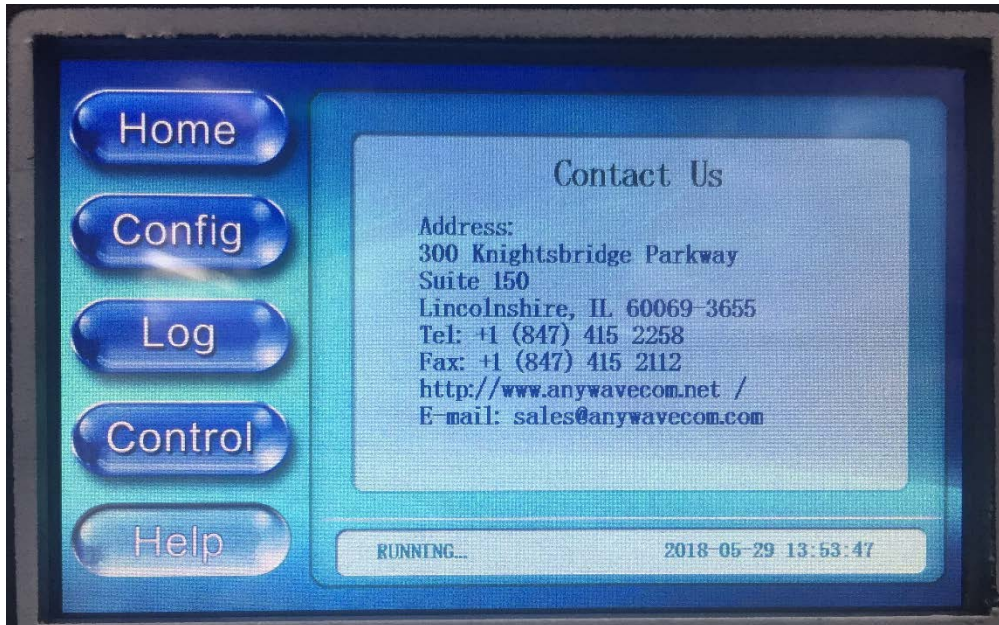
5.6 CONTROL SCREEN

Pressing the Control button on Title Bar in the Home Screen, will navigate to the Control Screen, as shown below. The Control screen allows the user to switch between Local and Remote Control of the TX. In Local, the TX processes commands from the front panel touchscreen and ignores commands via the Controller web interface. In Remote mode, the TX processes commands from the Controller Remote Web interface. Note: Be sure to switch the TX into Remote mode before leaving the TX site if Remote control of the TX is desired.





5.7 HELP SCREEN





6. Web Interface

6.1 TX WEB INTERFACE

The TX Control module provides a built-in web interface (192.168.1.210) that enables remote monitoring and control of the TX. This Control Module interface may be used for a variety of things, including turning the TX On/Off, manually switching between exciters (in a DD configuration), monitoring the voltages and currents of the PAs, calibrating the system and PA power meters, etc. Each PA also has its own built-in web interface (PA web interface: 192.168.1.200).

A built-in web interface also exists in the Exciter that may be used for such things as adjusting the TX output power, performing corrections, etc. (please reference the separate Exciter User Manual for a detailed description of the Exciter web interface). The Control Module communicates with the Exciter(s) and PAs inside the TX via an RS-485 bus network.

The Control Module built-in web interface is accessible via the rear panel LAN RJ-45 connection, once networked to your PC, the Controller web interface may be accessed via a web browser (such as Internet Explorer or Firefox, etc.) by entering the IP address of the Controller (default 192.168.1.210, note: you can navigate to the Network setting under the Config menu to view and change the Controller IPaddress).

Launching a web browser and entering the Controller IP address (192.168.1.210) will bring up the following login window.

The screenshot shows a web browser window displaying the login page of the MPTV web interface. The page has a dark blue sidebar on the left with the text "Anywave Communication Copyright 2015" and "Tel +1 (847) 415 2258". The main content area is white and contains a "Login" form with fields for "User name" and "Password", and a "login" button.



There are two tiers of web interface available. The first “guest” tier is limited in monitoring and control, allowing users to access only certain information. 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 Controller and is accessed with a username and password of "anywavecom" and "anywavecom" (case sensitive).

The screenshot shows the MPTV V1 TX web interface. The browser address bar displays '192.168.1.210/com_status.shtml'. The page title is 'MHPTV'. A 'Log out' button is visible in the top right corner. The left sidebar contains a menu with the following items: COM-STATUS, PRE-AMP-PARA, POST-AMP1-PARA, POST-AMP2-PARA, POST-AMP3-PARA, POST-AMP4-PARA, POST-AMP5-PARA, EXCITER-STATUS, NET&VERSION, SYSTEM-SET, COMMON-SET, POST-AMP-SET, ADVANCE-SET, and LOG-INFO. The main content area displays the following tables:

CONTROL-STATUS	
CONTROL-STATUS	LOCAL

COM-AMP-RUN-PARA					
FWD-POW	1113.56	W	REFL-POW	0.56	W
REJT1-POW	0.09	W	REJT2-POW	0	W
REJT3-POW	0	W	REJT4-POW	0	W
VSWR	1.04		ATT	8	

COM-AMP-ALARM-INFO			
FWD-POW	OK	REFL-POW	OK
REJT1-POW	OK	REJT2-POW	OK
REJT3-POW	OK	REJT4-POW	OK
VSWR	OK	IN-POW	OK

The screenshot shows the MPTV V1 TX web interface. The browser address bar displays '192.168.1.210/pre_amp.shtml'. The page title is 'MHPTV'. A 'Log out' button is visible in the top right corner. The left sidebar contains the same menu as the previous screenshot. The main content area displays the following table:

PRE-AMP-PARA					
IN-POW	2.09	dBm	CUR1	0	A
CUR2	0	A	CUR3	0	A
CUR4	0	A	CUR5	0	A



← → 192.168.1.210/amp1.shtml ☆

MHPTV [Log out](#)

COM STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

AMP1-RUN-PARA

FWD-POW	561.55	W	REFL-POW	4.56	W
IN-POW	14.31	dBm	50V-VOL	50.17	V
AMP-TEMP	133.44	°F	VSWR	1.19	
50V-CUR1	12.13	A	50V-CUR2	12.32	A
50V-CUR3	12.48	A	50V-CUR4	12.68	A
50V-CUR5	1.86	A	50V-CUR6	0	A
50V-CUR7	0.02	A	50V-CUR8	0.01	A
50V-CUR9	0	A	CUR-TOTAL	51.5	A
FAN1-SPEED	9720	RPM	FAN2-SPEED	9720	RPM
FAN3-SPEED	9720	RPM	FAN4-SPEED	9780	RPM
FAN5-SPEED	9840	RPM	FAN6-SPEED	9900	RPM
FAN7-SPEED	9840	RPM	FAN8-SPEED	9780	RPM
FAN9-SPEED	0	RPM	FAN10-SPEED	0	RPM
FAN11-SPEED	0	RPM	FAN12-SPEED	0	RPM

AMP1-ALARM-INFO

FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	50V-VOL	OK	▼

← → 192.168.1.210/amp1.shtml ☆

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

50V-CUR9 0 | A | CUR-TOTAL | 51.45 | A || FAN1-SPEED | 9420 | RPM | FAN2-SPEED | 9480 | RPM |
FAN3-SPEED	9480	RPM	FAN4-SPEED	9480	RPM
FAN5-SPEED	9600	RPM	FAN6-SPEED	9600	RPM
FAN7-SPEED	9600	RPM	FAN8-SPEED	9540	RPM
FAN9-SPEED	0	RPM	FAN10-SPEED	0	RPM
FAN11-SPEED	0	RPM	FAN12-SPEED	0	RPM

AMP1-ALARM-INFO

FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	50V-VOL	OK	▼
AMP-TEMP	OK	▼	VSWR	OK	▼
50V-CUR	OK	▼			
FAN1	OK	▼	FAN2	OK	▼
FAN3	OK	▼	FAN4	OK	▼
FAN5	OK	▼	FAN6	OK	▼
FAN7	OK	▼	FAN8	OK	▼
FAN9	N/A	▼	FAN10	N/A	▼
FAN11	N/A	▼	FAN12	N/A	▼

Version

MCU	V1.3-180512
-----	-------------

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← → 192.168.1.210/amp2.shtml ☆

MHPTV [Log out](#)

COM STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

AMP2-RUN-PARA					
FWD-POW	572.74	W	REFL-POW	4.02	W
IN-POW	14.91	dBm	50V-VOL	50.19	V
AMP-TEMP	125.43	°F	VSWR	1.18	
50V-CUR1	10.38	A	50V-CUR2	10.64	A
50V-CUR3	11.67	A	50V-CUR4	11.64	A
50V-CUR5	2.79	A	50V-CUR6	0	A
50V-CUR7	0.01	A	50V-CUR8	0	A
50V-CUR9	0.02	A	CUR-TOTAL	47.15	A
FAN1-SPEED	9660	RPM	FAN2-SPEED	9600	RPM
FAN3-SPEED	9660	RPM	FAN4-SPEED	9720	RPM
FAN5-SPEED	9720	RPM	FAN6-SPEED	9780	RPM
FAN7-SPEED	9840	RPM	FAN8-SPEED	9840	RPM
FAN9-SPEED	0	RPM	FAN10-SPEED	0	RPM
FAN11-SPEED	0	RPM	FAN12-SPEED	0	RPM

AMP2-ALARM-INFO					
FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	50V-VOL	OK	▼

← → 192.168.1.210/amp2.shtml ☆

EXCITER STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

50V-CUR9	0.02	A	CUR-TOTAL	47.13	A
FAN1-SPEED	9660	RPM	FAN2-SPEED	9660	RPM
FAN3-SPEED	9720	RPM	FAN4-SPEED	9720	RPM
FAN5-SPEED	9720	RPM	FAN6-SPEED	9840	RPM
FAN7-SPEED	9840	RPM	FAN8-SPEED	9840	RPM
FAN9-SPEED	0	RPM	FAN10-SPEED	0	RPM
FAN11-SPEED	0	RPM	FAN12-SPEED	0	RPM

AMP2-ALARM-INFO					
FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	50V-VOL	OK	▼
AMP-TEMP	OK	▼	VSWR	OK	▼
50V-CUR	OK	▼			
FAN1	OK	▼	FAN2	OK	▼
FAN3	OK	▼	FAN4	OK	▼
FAN5	OK	▼	FAN6	OK	▼
FAN7	OK	▼	FAN8	OK	▼
FAN9	N/A	▼	FAN10	N/A	▼
FAN11	N/A	▼	FAN12	N/A	▼

Version	
MCU	V1.3-180512

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← → 192.168.1.210/exciter_status.shtml ☆

MHPTV [Log out](#)

COM-STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

DEVICE-TYPE-SET

EXCITER-TYPE ATSC [SET](#)

EXCITER-BAND

BAND 6M [SET](#)

EXCITER-FREQ

FREQ_6M 79M [SET](#)

EXCITER-LINK-SET

EXCITER-LINK-SET A_EXCITE [SET](#)

EXCITER_MODE

EXCITER_MODE DOUBLE I [SET](#)

← → 192.168.1.210/net_version.shtml ☆

MHPTV [Log out](#)

COM-STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

NET-PARA-SET


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

VERSION

CONTROL-BOARD	V2.4-180510
POST-AMP-COLLECT-BOARD	V1.3-180512



← → 192.168.1.210/common_set.shtml ☆

 MHPTV [Log out](#)

COM-STATUS	TX-STATUS-SET
PREF-AMP-PARA	TX-SET ON SET
POST-AMP1-PARA	
POST-AMP2-PARA	AGC-SET
POST-AMP3-PARA	AGC-STATUS OFF SET
POST-AMP4-PARA	FWD-STANDARD 1100 SET
POST-AMP5-PARA	
EXCITER-STATUS	BOOT-SETTINGS
NET&VERSION	BOOT-SET ON SET
	REPEAT-BOOT-TIMES 3 SET
SYSTEM-SET	
COMMON-SET	POST-AMP-NUM
POST-AMP-SET	POST-AMP-NUM 2 SET
ADVANCE-SET	
LOG-INFO	CLEAR-ALARM-STATUS
	CLEAR-ALARM-STATUS NO SET

← → 192.168.1.210/common_set.shtml ☆

POST-AMP5-PARA	BOOT-SETTINGS
EXCITER-STATUS	BOOT-SET ON SET
NET&VERSION	REPEAT-BOOT-TIMES 3 SET
SYSTEM-SET	
COMMON-SET	POST-AMP-NUM
POST-AMP-SET	POST-AMP-NUM 2 SET
ADVANCE-SET	
LOG-INFO	CLEAR-ALARM-STATUS
	CLEAR-ALARM-STATUS NO SET
	CONTROL-STATUS
	CONTROL-STATUS LOCAL SET

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← → ↻ 192.168.1.210/com_amp_set.shtml ☆ ⋮

MHPTV [Log out](#)

COM-STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

COM-AMP-PARA-SET

FWD-MAX	1375	W	<input type="text"/>	<input type="button" value="SET"/>	FWD-PARA	14.6	<input type="text"/>	<input type="button" value="SET"/>
REFL-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>	REFL-PARA	10	<input type="text"/>	<input type="button" value="SET"/>
IN-MAX	5	dBm	<input type="text"/>	<input type="button" value="SET"/>	IN-PARA	14.6	<input type="text"/>	<input type="button" value="SET"/>
REJT1-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>	REJT1-PARA	15	<input type="text"/>	<input type="button" value="SET"/>
REJT2-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>	REJT2-PARA	0	<input type="text"/>	<input type="button" value="SET"/>
REJT3-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>	REJT3-PARA	0	<input type="text"/>	<input type="button" value="SET"/>
REJT4-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>	REJT4-PARA	0	<input type="text"/>	<input type="button" value="SET"/>
VSWR-MAX	2		<input type="text"/>	<input type="button" value="SET"/>	ATT	8	<input type="text"/>	<input type="button" value="SET"/>

← → ↻ 192.168.1.210/post_amp_set.shtml ☆ ⋮

MHPTV [Log out](#)

COM-STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET&VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

AVR_POS_ID

AVR_POS_ID	0	<input type="text"/>	<input type="button" value="SET"/>
------------	---	----------------------	------------------------------------

POST-AMP1-PARA-SET

FWD-MAX	800	W	<input type="text"/>	<input type="button" value="SET"/>	REF-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>
IN-MAX	28	dBm	<input type="text"/>	<input type="button" value="SET"/>	VSWR-MAX	2	<input type="text"/>	<input type="button" value="SET"/>	
TEMP-MAX	158	°F	<input type="text"/>	<input type="button" value="SET"/>	TEMP-TARGET	115	°F	<input type="text"/>	<input type="button" value="SET"/>
CUR1-MAX	14	A	<input type="text"/>	<input type="button" value="SET"/>	CUR2-MAX	10	A	<input type="text"/>	<input type="button" value="SET"/>
FWD-ADJ	19	<input type="text"/>	<input type="button" value="SET"/>		REF-ADJ	22.4	<input type="text"/>	<input type="button" value="SET"/>	
IN-ADJ	20	<input type="text"/>	<input type="button" value="SET"/>		FAN-NUM	8	<input type="text"/>	<input type="button" value="SET"/>	

POST-AMP2-PARA-SET

FWD-MAX	800	W	<input type="text"/>	<input type="button" value="SET"/>	REF-MAX	100	W	<input type="text"/>	<input type="button" value="SET"/>
IN-MAX	28	dBm	<input type="text"/>	<input type="button" value="SET"/>	VSWR-MAX	2	<input type="text"/>	<input type="button" value="SET"/>	
TEMP-MAX	158	°F	<input type="text"/>	<input type="button" value="SET"/>	TEMP-TARGET	115	°F	<input type="text"/>	<input type="button" value="SET"/>
CUR1-MAX	14	A	<input type="text"/>	<input type="button" value="SET"/>	CUR2-MAX	10	A	<input type="text"/>	<input type="button" value="SET"/>
FWD-ADJ	16.45	<input type="text"/>	<input type="button" value="SET"/>		REF-ADJ	24	<input type="text"/>	<input type="button" value="SET"/>	
IN-ADJ	22	<input type="text"/>	<input type="button" value="SET"/>		FAN-NUM	8	<input type="text"/>	<input type="button" value="SET"/>	



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POST-AMP3-PARA-SET

FWD-MAX	0	W	SET	REF-MAX	0	W	SET
IN-MAX	0	dBm	SET	VSWR-MAX	0		SET
TEMP-MAX	0	°F	SET	TEMP-TARGET	0	°F	SET
CUR1-MAX	0	A	SET	CUR2-MAX	0	A	SET
FWD-ADJ	0		SET	REF-ADJ	0		SET
IN-ADJ	0		SET	FAN-NUM	0		SET

POST-AMP4-PARA-SET

FWD-MAX	0	W	SET	REF-MAX	0	W	SET
IN-MAX	0	dBm	SET	VSWR-MAX	0		SET
TEMP-MAX	0	°F	SET	TEMP-TARGET	0	°F	SET
CUR1-MAX	0	A	SET	CUR2-MAX	0	A	SET
FWD-ADJ	0		SET	REF-ADJ	0		SET
IN-ADJ	0		SET	FAN-NUM	0		SET

POST-AMP5-PARA-SET

FWD-MAX	0	W	SET	REF-MAX	0	W	SET
IN-MAX	0	dBm	SET	VSWR-MAX	0		SET
TEMP-MAX	0	°F	SET	TEMP-TARGET	0	°F	SET
CUR1-MAX	0	A	SET	CUR2-MAX	0	A	SET
FWD-ADJ	0		SET	REF-ADJ	0		SET
IN-ADJ	0		SET	FAN-NUM	0		SET

MHPTV

Log out

COM-STATUS

PRE-AMP-PARA

POST-AMP1-PARA

POST-AMP2-PARA

POST-AMP3-PARA

POST-AMP4-PARA

POST-AMP5-PARA

EXCITER-STATUS

NET-VERSION

SYSTEM-SET

COMMON-SET

POST-AMP-SET

ADVANCE-SET

LOG-INFO

SYS-PARA-RESTORE


POST-AMP1-E2-RESET	NO	SET
POST-AMP2-E2-RESET	NO	SET
POST-AMP3-E2-RESET	NO	SET
POST-AMP4-E2-RESET	NO	SET
POST-AMP5-E2-RESET	NO	SET
COM-AMP-PARA-RESET	NO	SET

REMOTE-UPGRADE

REMOTE-UPGRADE	NO	SET
----------------	----	-----



← → 192.168.1.210/sys_log.shtml ☆

 MHPTV [Log out](#)

COM-STATUS
PRE-AMP-PARA
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET

LOG-INFO

log					
lg_total		0			
last off time					
running status					
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	
log_num		log_info		log_time	

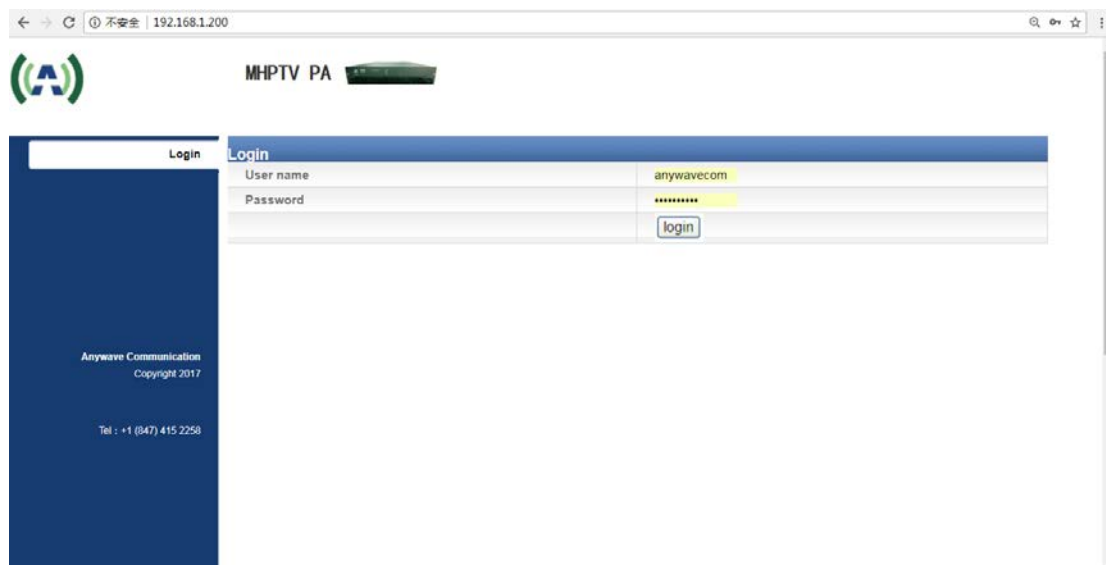


6.2 PA Web Interface


Each PA drawer installed in an MPTV TX has its own built-in web interface accessible via the front panel LAN port (192.168.1.200).


There are two tiers of web interface available. The first “anywavecom” tier (username and password of "anywavecom" and "anywavecom", both case sensitive) allows the user to remotely monitor PA power levels, voltage, and device currents as well as view and modify PA network settings, max operating parameters, meter calibrations, RS-485 network ID, etc. The second “anywave_e” tier (username and password of "anywave_e" and "anywave_e", both case sensitive) provides full status and control of the PA including details information as well as setting output voltage of PSUs and is designed and used for test and debug purpose. Without permission of Anywave technical support team, please do not change any advanced settings in “anywave_e” web pages.

“anywavecom/anywavecom”







MPTV PA 

LOG OUT

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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STATUS

FWD-POW	558.08	W	REFL-POW	4.54	W
IN-POW	14.31	dBm	AMP-TEMP	140.02	°F 60.01 °C
VSWR	1.19		50V-VOL	50.17	V
50V-CUR1	12	A	50V-CUR2	12.27	A
50V-CUR3	12.48	A	50V-CUR4	12.61	A
50V-CUR5	1.88	A	50V-CUR6	0	A
50V-CUR7	0.02	A	50V-CUR8	0.01	A
50V-CUR9	0	A	CUR_TOTAL	51.25	A
50V-POW	2571.21	W	DC-EFF	21.70	%
FAN1-SPEED	9660	RPM	FAN2-SPEED	9720	RPM
FAN3-SPEED	9720	RPM	FAN4-SPEED	9720	RPM
FAN5-SPEED	9780	RPM	FAN6-SPEED	9780	RPM
FAN7-SPEED	9840	RPM	FAN8-SPEED	9780	RPM
FAN9-SPEED	N/A	RPM	FAN10-SPEED	N/A	RPM
FAN11-SPEED	N/A	RPM	FAN12-SPEED	N/A	RPM
LINK-CTRL	OK	▼	FREQ	0	MHz

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FAN7-SPEED	9840	RPM	FAN8-SPEED	9780	RPM
FAN9-SPEED	N/A	RPM	FAN10-SPEED	N/A	RPM
FAN11-SPEED	N/A	RPM	FAN12-SPEED	N/A	RPM
LINK-CTRL	OK	▼	FREQ	0	MHz
LINK-DET	OK	▼			

ALARM INFORMATION

FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	VSWR	OK	▼
50V-CUR	OK	▼	AMP-TEMP	OK	▼
50V-VOL	OK	▼	FAN1	OK	▼
FAN2	OK	▼	FAN3	OK	▼
FAN4	OK	▼	FAN5	OK	▼
FAN6	OK	▼	FAN7	OK	▼
FAN8	OK	▼	FAN9	N/A	▼
FAN10	N/A	▼	FAN11	N/A	▼
FAN12	N/A	▼			

VERSION

MCU	V3.2C-180512
-----	--------------



← → 192.168.1.200/sys_set.shtml

MPTV PA [LOG OUT](#)

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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HARDWARE-PARA

FWD-ADJ	19	REF-ADJ	22.4
IN-ADJ	20	SYS_ID	130
FAN_NUM	8		
FAN_SPEED	68		

[SET](#)

ALARM-PARA

FWD-MAX	800 W	REFL-MAX	100 W
VSWR-MAX	2	50VCUR-MAX	14 A
TEMP-MAX	158 °F	IN-MAX	28 dBm
TEMP-TARGET	115 °F		

[SET](#)

PROTECT-PARA

FWD-PRO	2500 W	REFL-PRO	150 W
IN-PRO	32 dBm	TEMP-PRO	212 °F

[SET](#)

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[SET](#)

PROTECT-PARA

FWD-PRO	2500 W	REFL-PRO	150 W
IN-PRO	32 dBm	TEMP-PRO	212 °F

[SET](#)

RTC-PARA

RTC-DATE	2000 Y 2 M 15 D	RTC-TIME	1 H 22 M 7 S
----------	-----------------	----------	--------------

[SET](#)

SYS-PARA-RESET

PARA-RESET	NO
------------	----

[SET](#)

CLEAR-LOG

CLEAR-LOG	NO
-----------	----

[SET](#)

REMOTE-UPGRADE

REMOTE-UPGRADE	NO
----------------	----

[SET](#)



← → 192.168.1.200/net_eth.shtml

MPTV PA [LOG OUT](#)

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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NET-PARA-SET

IP	192	168	1	200	SET
MASK	255	255	255	0	SET
GATEWAY	192	168	1	1	SET

← → 192.168.1.200/sys_log.shtml

MPTV PA [LOG OUT](#)

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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LOG

LOG_NUM	17	LOG_INFO	FAN9 ERROR	LOG_TIME	
LOG_NUM	18	LOG_INFO	FAN10 ERROR	LOG_TIME	
LOG_NUM	19	LOG_INFO	FAN11 ERROR	LOG_TIME	
LOG_NUM	20	LOG_INFO	FAN12 ERROR	LOG_TIME	
LOG_NUM	7	LOG_INFO	50V-VOL UNDER-VOLT	LOG_TIME	
LOG_NUM	5	LOG_INFO	50V-CUR ERROR	LOG_TIME	
LOG_NUM	6	LOG_INFO	AMP-TEMP ERROR	LOG_TIME	
LOG_NUM	1	LOG_INFO	FWD-POW ERROR	LOG_TIME	
LOG_NUM	3	LOG_INFO	IN-POW ERROR	LOG_TIME	



“anywave_e/anywave_e”

← → ↻ 192.168.1.200/login.shtml

MHPTV PA

Login

User name: anywave_e

Password: *****

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← → ↻ 192.168.1.200/status_info.shtml

MHPTV PA

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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STATUS					
FWD-POW	558.08	W	REFL-POW	4.59	W
IN-POW	14.29	dBm	AMP-TEMP	140.22	°F 60.12 °C
VSWR	1.19		50V-VOL	50.17	V
50V-CUR1	12.02	A	50V-CUR2	12.22	A
50V-CUR3	12.4	A	50V-CUR4	12.62	A
50V-CUR5	1.87	A	50V-CUR6	0	A
50V-CUR7	0.02	A	50V-CUR8	0.01	A
50V-CUR9	0	A	CUR_TOTAL	51.16	A
50V-POW	2566.70	W	DC-EFF	21.74	%
FAN1-SPEED	9660	RPM	FAN2-SPEED	9720	RPM
FAN3-SPEED	9720	RPM	FAN4-SPEED	9660	RPM
FAN5-SPEED	9780	RPM	FAN6-SPEED	9780	RPM
FAN7-SPEED	9780	RPM	FAN8-SPEED	9720	RPM
FAN9-SPEED	N/A	RPM	FAN10-SPEED	N/A	RPM
FAN11-SPEED	N/A	RPM	FAN12-SPEED	N/A	RPM
LINK-CTRL	OK	▼	FREQ	0	MHz



← → 192.168.1.200/status_info.shtml

LINK-DETOK▼

ALARM INFORMATION

FWD-POW	OK	▼	REF-POW	OK	▼
IN-POW	OK	▼	VSWR	OK	▼
50V-CUR	OK	▼	AMP-TEMP	OK	▼
50V-VOL	OK	▼	FAN1	OK	▼
FAN2	OK	▼	FAN3	OK	▼
FAN4	OK	▼	FAN5	OK	▼
FAN6	OK	▼	FAN7	OK	▼
FAN8	OK	▼	FAN9	N/A	▼
FAN10	N/A	▼	FAN11	N/A	▼
FAN12	N/A	▼			

POWER-INFO

VOLT-INPUT1	229.9	V	VOLT-INPUT2	230.5	V
VOLT-OUTPUT1	49.9	V	VOLT-OUTPUT2	50	V
VOLT-SETP1	50	V	VOLT-SETP2	50	V
CUR-OUTPUT1	27.1	A	CUR-OUTPUT2	26.3	A
PWR-OUTPUT1	1352.3	W	PWR-OUTPUT2	1315.0	W
POWER-TEMP1	118.4	°F 48 °C	POWER-TEMP2	118.4	°F 48 °C

← → 192.168.1.200/status_info.shtml

50V-VOL	OK	▼	FAN1	OK	▼
FAN2	OK	▼	FAN3	OK	▼
FAN4	OK	▼	FAN5	OK	▼
FAN6	OK	▼	FAN7	OK	▼
FAN8	OK	▼	FAN9	N/A	▼
FAN10	N/A	▼	FAN11	N/A	▼
FAN12	N/A	▼			

POWER-INFO					
VOLT-INPUT1	230.4	V	VOLT-INPUT2	230.5	V
VOLT-OUTPUT1	49.9	V	VOLT-OUTPUT2	50	V
VOLT-SETP1	50	V	VOLT-SETP2	50	V
CUR-OUTPUT1	27.1	A	CUR-OUTPUT2	26.3	A
PWR-OUTPUT1	1352.3	W	PWR-OUTPUT2	1315.0	W
POWER-TEMP1	118.4	°F 48 °C	POWER-TEMP2	118.4	°F 48 °C
POWER-FAN1	OK	▼	POWER-FAN2	OK	▼
POWER-STATUS1	OK	▼	POWER-STATUS2	OK	▼
LINK-POWER1	OK	▼	LINK-POWER2	OK	▼

VERSION	
MCU	V3.2C-180512



← → 192.168.1.200/sys_set.shtml

MPTV PA [LOG OUT](#)

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

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HARDWARE-PARA

FWD-ADJ	19	REF-ADJ	22.4
IN-ADJ	20	SYS_ID	130
FAN_NUM	8	P-VOLT-OUT	50
FAN_SPEED	68		

[SET](#)

ALARM-PARA

FWD-MAX	800 W	REFL-MAX	100 W
VSWR-MAX	2	50VCUR-MAX	14 A
TEMP-MAX	158 °F	IN-MAX	28 dBm
TEMP-TARGET	115 °F		

[SET](#)

PROTECT-PARA

FWD-PRO	2500 W	REFL-PRO	150 W
IN-PRO	32 dBm	TEMP-PRO	212 °F

[SET](#)

← → 192.168.1.200/sys_set.shtml

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[SET](#)

PROTECT-PARA

FWD-PRO	2500 W	REFL-PRO	150 W
IN-PRO	32 dBm	TEMP-PRO	212 °F

[SET](#)

RTC-PARA

RTC-DATE	2000 Y 2 M 15 D	RTC-TIME	1 H 26 M 15 S
----------	-----------------	----------	---------------

[SET](#)

SYS-PARA-RESET

PARA-RESET	NO
------------	----

[SET](#)

CLEAR-LOG

CLEAR-LOG	NO
-----------	----

[SET](#)



REMOTE-UPGRADE

REMOTE-UPGRADE	NO
----------------	----

[SET](#)



← → 192.168.1.200/net_eth.shtml

 **MHPTV PA**  [LOG OUT](#)

STATUS

SYSTEM SETTINGS

NETWORK SETTINGS

LOG-INFO

NET-PARA-SET

IP	192	168	1	200	SET
MASK	255	255	255	0	SET
GATEWAY	192	168	1	1	SET

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7. Parts List

This section contains a list of the replaceable modules for Anywave MPTV transmitter. Use this list to identify and order replacement parts.

Part Ordering

Before you contact Anywave support center or your sales representative for available replacement parts, please get the following information ready:

- Order number and order date
- Product model names and part numbers
- All available options of your product
- Product/module serial numbers

Module Servicing

Modules can be serviced through one of the following three options. Contact Anywave Technical Support Center or your sales representative for assistance.

■ Exchange

In some cases, you may exchange your module for a refurbished module. These modules cost significantly less than new modules and meet the same factory specifications.

■ Repair and Return

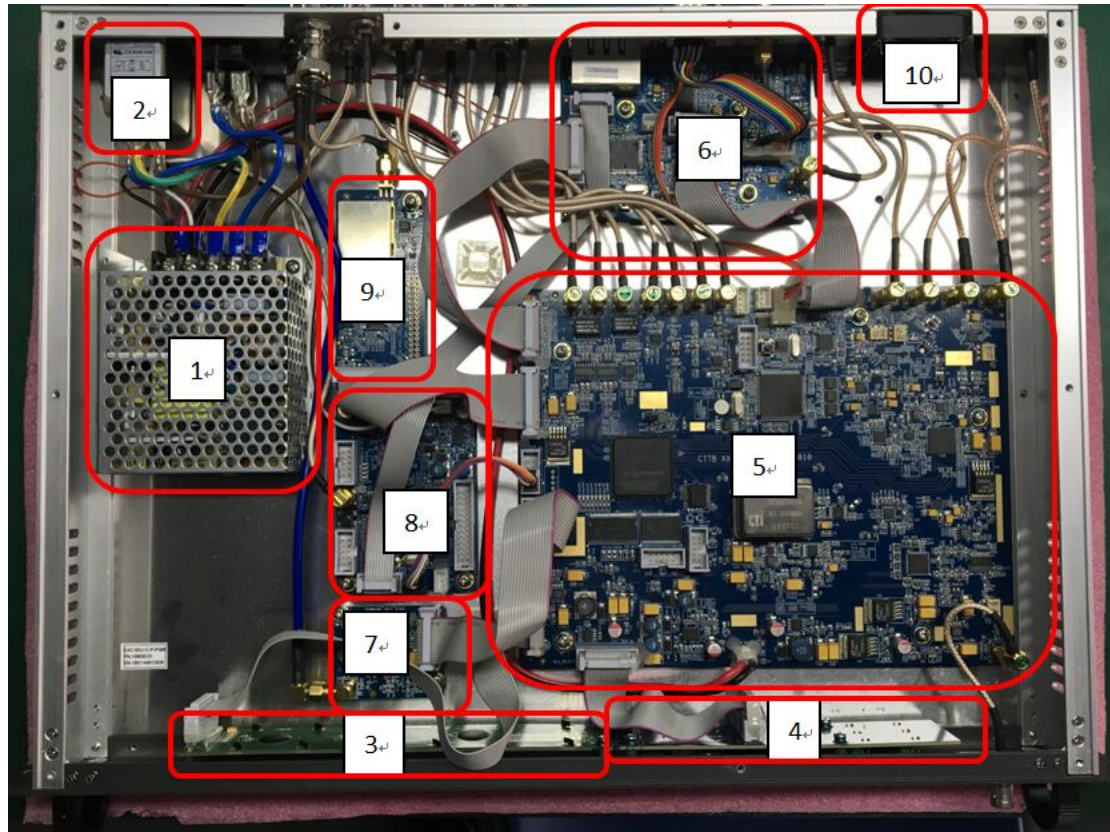
You may ship your module/product to us for evaluation and repair, after which we will return it to you.

■ New Modules

You may purchase replacement modules in the same way as other replacement parts.



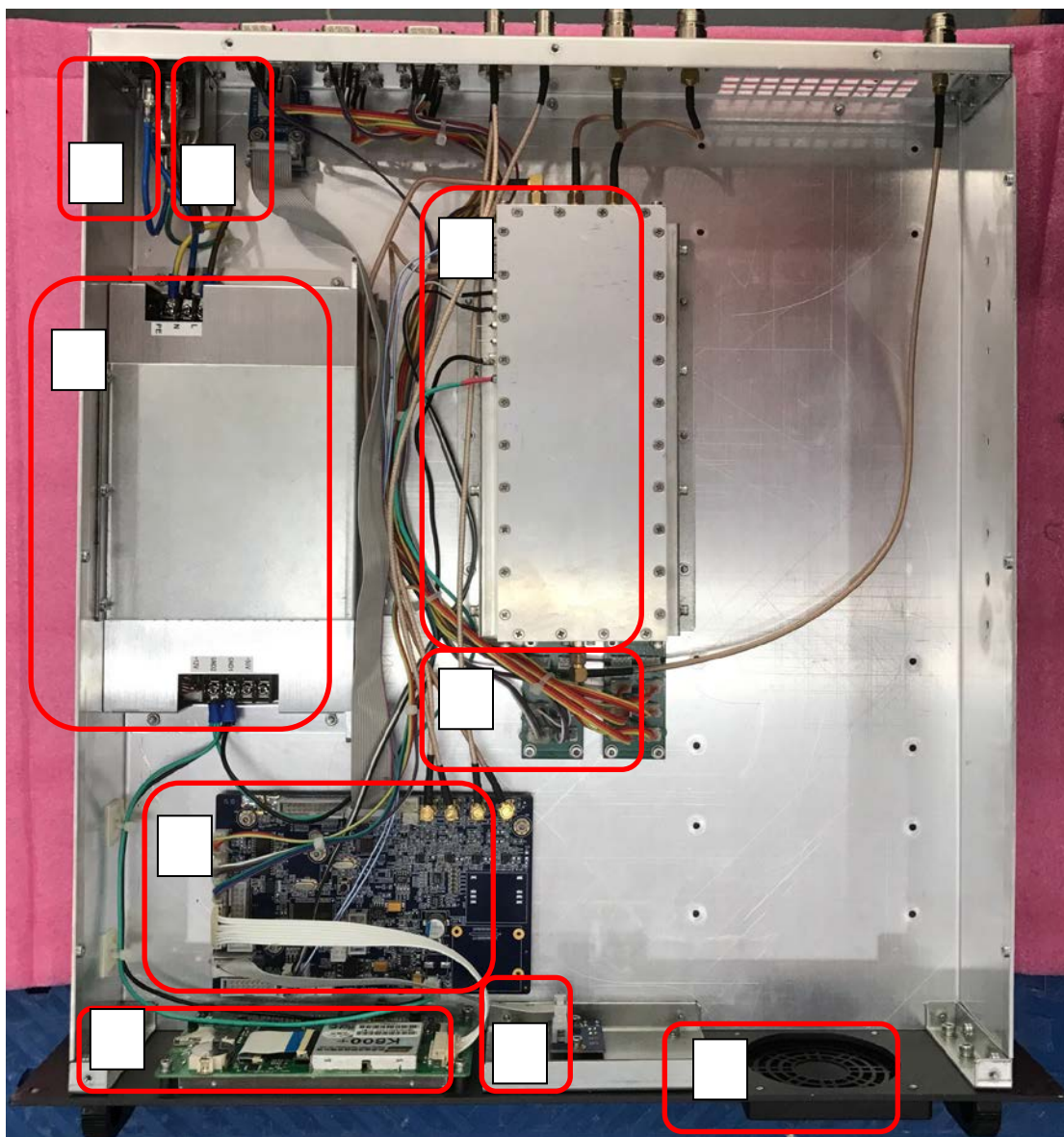
5x+ digital exciter:



1. Power supply unit (RS-35-12)
2. AC in (CW2A-01A-T)
3. LCD (SHZJ-A402A2)
4. Keyboard (FB-V8)
5. Main circuit board (EMV1.4)
6. Dry loop module (V2.5)
7. GPS module (V4.0)
8. TSOIP module (V2.4)
9. TUNER module (V1.0)
10. Fan (C4010M12BPLB1-5)



Control Unit CTL-S-V1



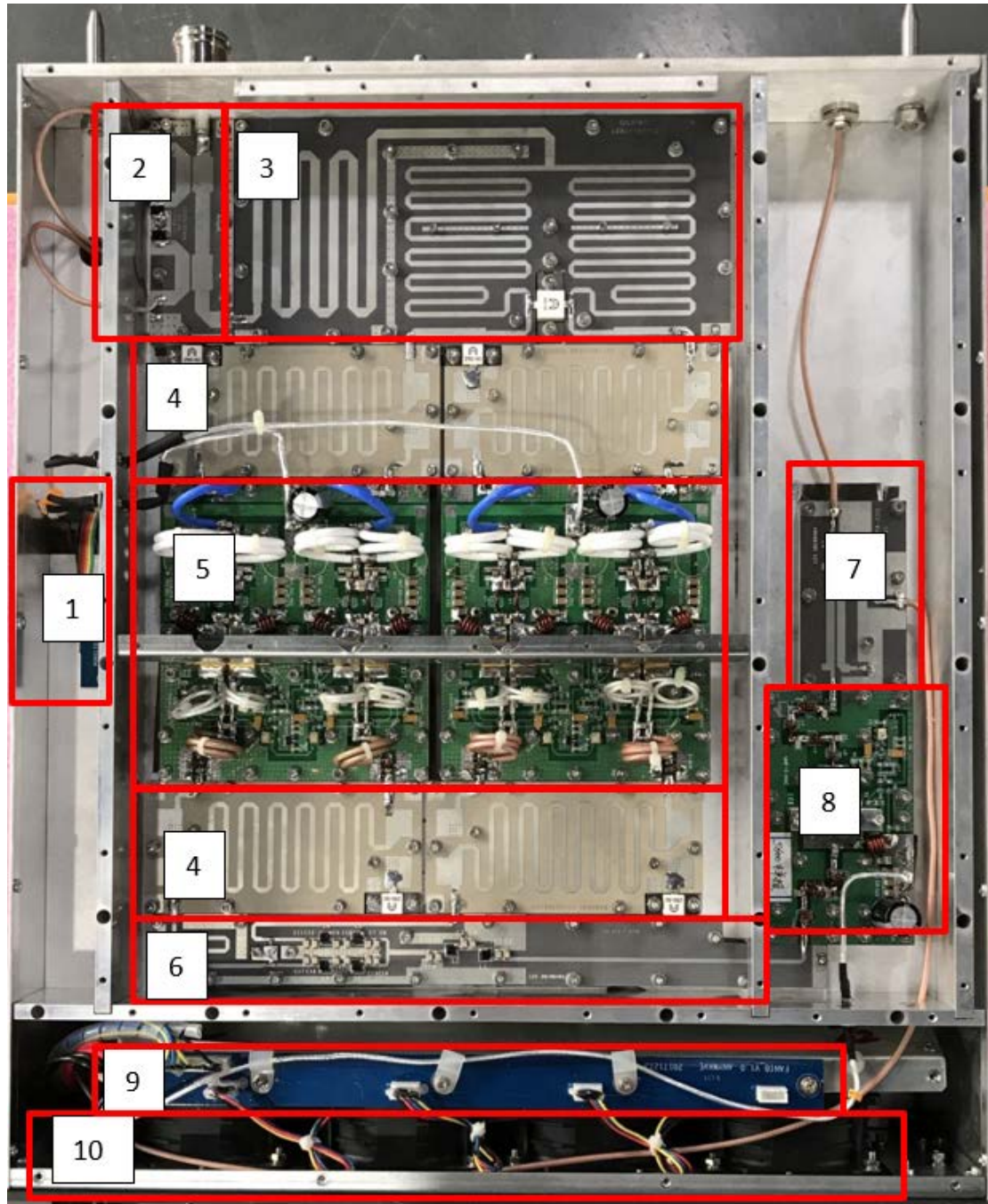
1. AC filter (CW2A-10A-T 10A)
2. Network board (Conboard_V3.0)
3. PSU (LAF240-220D50-12)
4. Pre-amp board (SW_EX_V20)
5. I2C board (12C*8_V1.0)
6. Control board (1KW_CTL_V24)
7. LCD (DMT80480T050-01WT)



- 8. LEDs (PALED_V1.0)
- 9. Fans (FFB0848SHE)



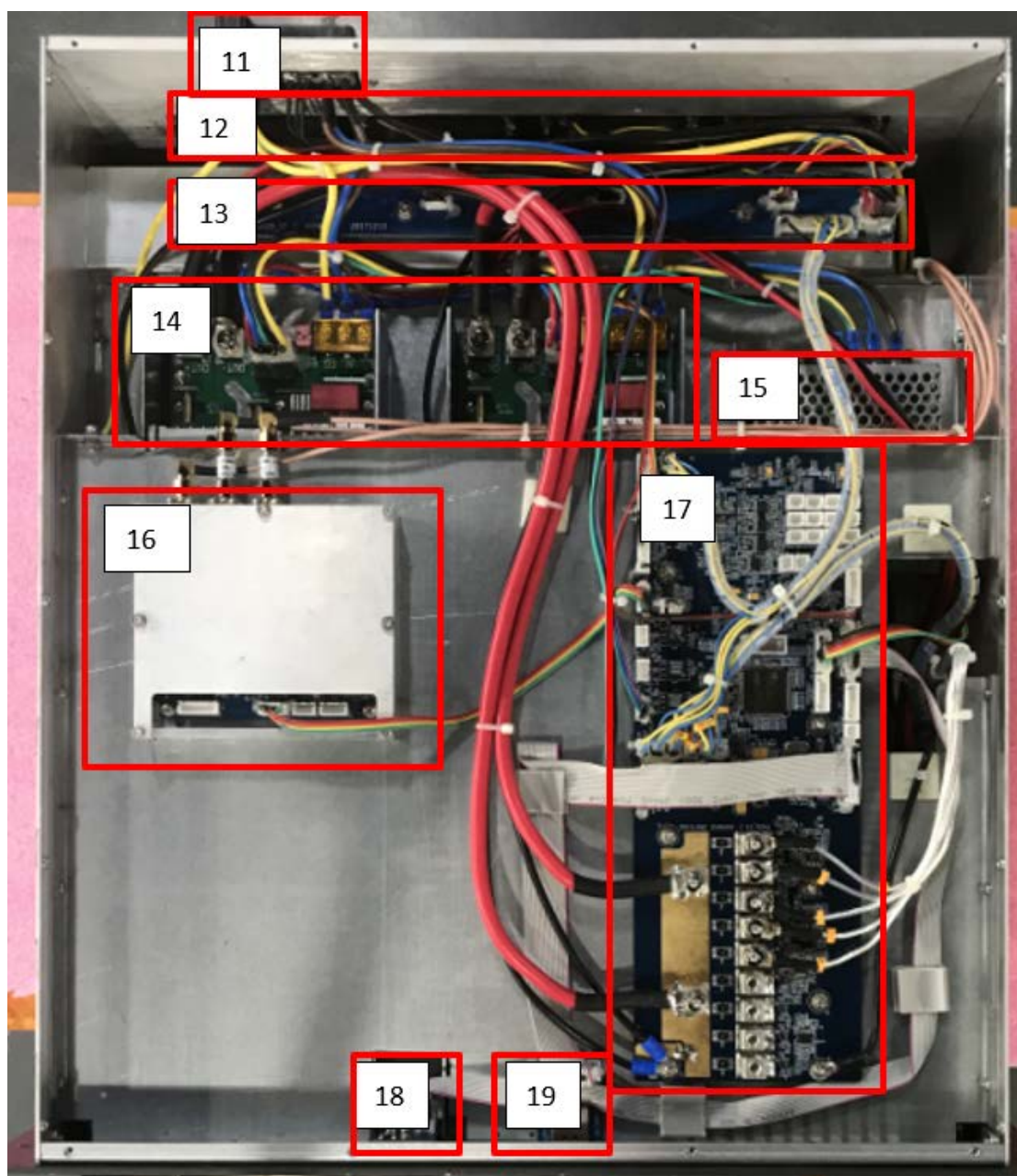
PA amplifier module:



1. Temperature sensor board(TMP_V2.1)
2. 1Kw PA COUPLER (PCB-V1-PA-COUPLER) (frequency specified with order)
3. Combiner(RDL65B01)
4. Splitter/Combiner(PA50P01)



5. Last stage amplifier(MRFE61K25)
6. Splitter(V1-DIV-2-800W)
7. Input coupling board(PRE-PA-COU)
8. Pre-amp(MRFE5600)
9. Fan interface connector(FANIB_V1.0)
10. Fans(PF80384BX-000C-S99)



11. DL29T-21\CS42-29T-02、12ZHAUM、20ZHAUM

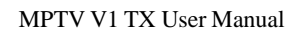


12. Fans (PF80384BX-000C-S99)
13. Fan interface connector (FANIB_V1.0)
14. Large PSU (FMP25.48S200G)
15. Small PSU (RS-50-12)
16. Power detection board (DET-V1.0)
17. Control board (PACB_V3.2)
18. LED (PALED_V1.0)
19. Network board (Conboard_V3.0)



8. Replacement Parts – Order form

Replacement/Spare Parts are available from the Anywave Technical Support Department. Telephone 847-415-2258 (option 2 for daytime support (9AM to 5 PM Central Time), option 3 for after hour emergency support) or email support_us@anywavecom.com.



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