HD Communications
Model: HD33568
42-43 MHz, 1500 Watt RF Amplifier
User Manual

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FCC Compliance notes

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:- Reorient or relocate the receiving antenna.- Increase the separation between the equipment and receiver.-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.-Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT SAFTEY INFORMATION

Warning:

- For safe operation and installation, please read this manual prior to using this product.
- Practice all local facility and product safety instructions and precautions.
- Failure to follow the manual instructions may cause death, personal injury or property damage.
- HD Communications Corporation provides information concerning the hazards of the product and its use, but assumes no responsibility for any operator miss-use of the product or conflicting local safety practices
- **INTERLOCKS OR GROUNDING MUST NOT BE BYPASSED OR DISREGARDED**

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Chapter 1 Safety Guidlines

1.1 Important Safety Information

To ensure safe installation and operation of the HD33568 RF Amplifier, read and understand this manual before installation and any attempt to operate this product. At a minimum, read and follow the safety instructions and practices in section “Rules for Safe Installation and Operation” below.

1.2 Rules for Safe Installation and Operation

1.2.1 Do not attempt to install or operate this equipment without proper training

1.2.2 Ensure that the unit is properly grounded (see Grounding and Grounding)

1.2.3 Ensure that all cables are properly connected

1.2.4 Verify that input voltage and current capacity are within specifications prior to turning on the product (see AC Specifications)

1.2.5 Use proper electrostatic discharge (ESD) and lockout/tagout precautions

1.2.6 Always be careful around this product

1.3 Cautions and Safety

Follow all warnings and instructions marked on or supplied with the product.

1.3.1 Symbology:

HIGH VOLTAGE

CAUTION

RADIO FREQUENCY ENERGY HAZARD

PROTECTIVE GROUND

WARNING

THE CURRENTS AND VOLTAGES IN THIS PRODUCT ARE DANGEROUS. PERSONNEL MUST OBSERVE SAFETY REGULATIONS AT ALL TIMES.

1.3.2 This manual is intended as a general guide for trained and qualified personnel who are aware of the dangers inherent in handling potentially dangerous electrical and electronic circuits. It is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this or other electronic equipment.

1.3.3 The installation and operation of this equipment involves risks both to personnel and equipment. It must be performed only by qualified personnel exercising due care. HD Communications Corporation shall not be responsible for injury or damage resulting from improper procedures or from the use of improperly trained or inexperienced personnel performing such tasks.

1.3.4 During installation and operation of this equipment, all applicable building codes and fire protection codes must be observed.

1.3.5 Do not remove, short-circuit, or tamper with interlock switches. Keep away from live circuits. Know your equipment and don't take chances Do not remove, short-circuit, or tamper with interlock switches. Keep away from live circuits. Know your equipment and don't take chances

1.3.6 This RF Amplifier is air cooled. **DO NOT OPERATE THE RF AMPLIFIER WITHOUT ADEQUATE AIR FLOW.**

WARNING

DAMAGE CAUSED TO THE AMPLIFIER BY INADEQUATE AIR FLOW IS NOT COVERED BY WARRANTY. DO NOT RESTRICT THE EXHAUST IN ANY WAY. DO NOT VENT THE EXHAUST WHERE WIND, OR OTHER FORCES CAN CAUSE BACK PRESSURE.

1.3.7 This unit complies with FCC RF exposure limits for an uncontrolled environment. To comply with FCC exposure limit requirements, antennas must be operated at a minimum distance of 7.76m between the radiator and any person's body.

WARNING

THIS AMPLIFIER GENERATES RF ENERGY. EXPOSURE TO RF ENERGY CAN BE HAZZARDOUS TO HUMAN HEALTH.
MAINTAIN ADEQUATE DISTANCE FROM THE ANTENNA THAT RADIATES THE ENERGY GENERATED BY THIS AMPLFIER.

1.3.8 Do not use this equipment near water, wet locations, or outdoors.

1.3.9 Do not place this equipment on an unstable cart, stand, or table. The HD33568 RF Amplifier may fall, causing personal injury or damage to the RF Amplifier.

1.3.10 To avoid electric shock, this unit must be connected to the power source in compliance with the National Electrical Code ANSI C1 and/or any other codes applicable to the user. Improper installation may result in a shock or fire hazard.

1.3.11 It is the responsibility of the installer to provide a proper protective ground from the HD33568 RF Amplifier to earth ground, in accordance with local and national electrical codes, and any other codes applicable to the user.

1.3.12 The HD33568 RF Amplifier should be operated from the type of power source indicated by the serial tag and AC Input Specifications. If you are not sure of the type of power available, consult the system integrator, an electrician, or your local power company.

1.3.13 Do not allow anything to rest on the power cable, RF cables, or other interconnecting cables. Do not locate the HD33568 RF Amplifier where people will step on the power, RF, or interconnecting cables.

1.3.14 Slots and Openings in the equipment's chassis are provided for ventilation. To ensure reliable operation of the HD33568 RF Amplifier, these openings must not be blocked, covered, or restricted. Restricting the air inlets or exhaust will cause the unit to overheat. Sustained over temperature conditions may degrade or cause damage.

1.3.15 Never push objects of any kind into the slots and openings of the HD33568 RF Amplifier enclosure. They may touch dangerous voltage points or short out parts, which could result in a fire or electric shock.

1.3.16 Never spill liquid of any kind on or into the HD33568 RF Amplifier.

1.3.17 Never remove covers or guards that require a tool for removal. **THERE ARE NO OPERATOR SERVICABLE AREAS WITHIN THE COVERS**. Refer servicing to qualified service personnel.

WARNING
ELECTRICAL SHOCK HAZARD PRESENT
INSIDE UNIT, AT THE RF INPUT AND RF OUTPUT
CONNECTORS/CONNECTIONS.
DO NOT REMOVE COVERS.

Chapter 2 Product Overview

2.1 Operation Overview

The purpose of this RF Amplifier is to convert AC line voltage (and current) to precise, highly regulated, RF power. The major sub-assemblies include: AC to DC conversions, power amplifier, RF power measurement and microprocessor-based controls.

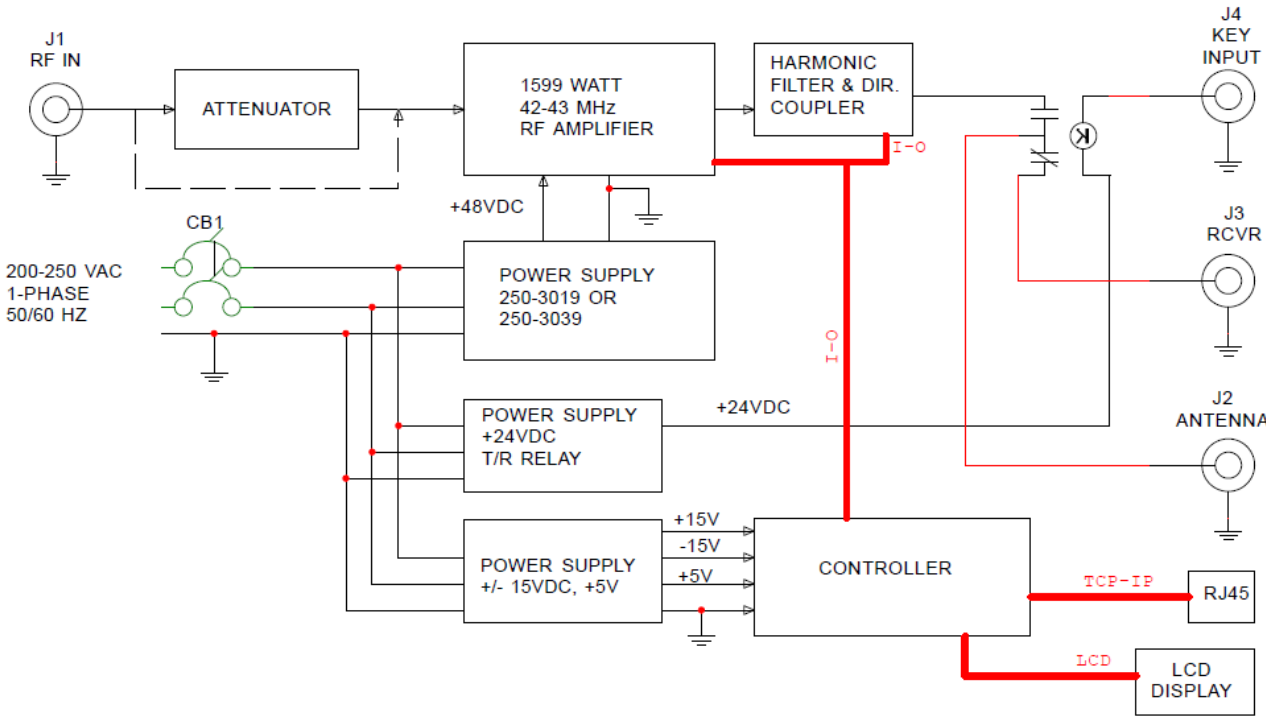

Figure 1- Simplified Block Diagram

Chapter 3 Specifications

3.1 Physical Description

3.1.1 The HD33568 is housed in a 19" rack chassis see (Mechanical) for details. AC power input and circuit breaker are located on the rear of the chassis. The RF Output is on the rear of the chassis. A fan is mounted behind the front panel. Air flow in from the front and side of the unit and exhausted through the rear.

3.1.2 The rear panel contains the Serial connector (DB9 female), RJ-45 (TCP/IP connector), RF Input (type N female), RF Output (7/16" DIN), Key (RCA phono female).

3.1.3 The HD33568 uses a 5.4" (13.7cm) TFT touchscreen display. All set up of the Amplifier 's local controls, readings, etc. are performed from the display.

3.2 Electrical Description

3.2.1 The Amplifier requires a single phase power source see (AC Input Specification).

3.2.2 The Controller section communicates with the appropriate I/O (front panel, serial, TCP/IP) to generate all RF functionality. The controller section also supplies feedback as to control settings and status (digital and analog) of the Amplifier.

3.2.3 The RF Amplifier section consists of multiple stages. The amplifier takes the output of the exciter and amplifiers to the specified power output.

3.3 General Specifications

3.3.1 AC Input Specifications

AC Input Voltage	Single phase 180 VAC to 240 VAC
AC Line Frequency	50/60 Hz nominal
AC Input Current	< 15 A maximum
Ground Leakage Current	< 0.5 mA maximum
Power Factor	> 0.95 typical at full rated power into a 50 Ω load
Efficiency (line to load)	> 0.50ypical at full-rated power, nominal line, into a 50 Ω load

3.3.2 Output Power Characteristics

Operating Frequency Range	42 MHz to 43 MHz
Power Output	1500 W(minimum), CW / FM -1 Tone
Power Gain	30 dB Nominal (27 dB to 33 dB), Pin = 1.5 W for normal operation
Power Gain Flatness	0.5 dB p-p Maximum, constant input power
Gain Adjustment	+/- 3dB, Rear Panel – Manual Adjust
Input Return Loss	-10 dB Maximum, relative to 50 Ω
Harmonics	< -80 dB typical, at rated power, FCC 47 CFR 90.210 Emission Mask B

Spurious	-80 dB Non-Harmonics, FCC 47 CFR 90.210 Emission Mask B
Load VSWR	2:1 Max, Full rated RF Pout

3.3.3 Connections and Interface

AC Input	Fixed line cord with a 20 Amp
Chassis Ground	One 10-24 tapped hole located on the rear panel 'Ground Symbol' marking located visibly next to the hole
RF Connector Input	N-type (f), located on the rear panel
RF Connector Output	7/16 DIN, located on the rear panel
Receiver RF Connector	BNC (f), located on the rear panel
Key (Transmit) Connector	RCA (f), located on rear panel
Key (Transmit) Logic	Ground to be supplied to switch to transmit mode
I/O Data Interface	RJ45, located on the rear panel
RS232 (serial) I/O	DB9 connector on rear panel.

3.3.4 Mechanical Specifications

Size	482 mm (width) x 483 mm (depth) x 134 mm (height)
Weight	< 16 kg
Mounting	19" Rack Mounting
Clearance	80 mm at each side for cooling 100 mm for rear panel connections
Handles for positioning	Unit has 2 handles on front panel
Cooling Medium	Primary cooling medium is air

3.3.5 Environmental Conditions

Operating Ambient Temperature	0 °C to + 55 °C
Storage Temperature	- 40 °C to + 85 °C
Relative Humidity	0 % to 95 %, non-condensing

3.4 Equipment Identification

3.4.1 The Amplifier is identified by a Model Number and Serial Number located on the top of the chassis. All correspondence to the factory should reference the complete Model and Serial Numbers.

Chapter 4 Installation

4.1 Initial Inspection

4.1.1 Carefully inspect the Amplifier for any evidence of shipping damage. This inspection should include observing all sides of the chassis for physical damage. Observe the front panel. If the display shows any scratches or alignment problem, it may indicate that the Amplifier was handled roughly or dropped. Check the shipping documents against the received material to ensure that the shipment is complete. **NOTIFY THE SHIPPING CARRIER AND HD COMMUNICATIONS IMMEDIATELY OF ANY DAMAGE OR MISSING MATERIAL.**

4.2 Environmental Requirements

4.2.1 The Amplifier must be kept in a clean, dry environment. Adequate external heat must be provided to keep the temperature above 0 ºC. Enough ventilation or air conditioning should be provided to keep the building temperature below 55 ºC when all equipment in the building is in operation. **DO NOT COVER THE TOP OR SIDES OF THE CHASSIS OR RESTRICT AIR FLOW IN ANY MANNER.**

4.3 Mechanical Requirements

4.3.1 The Amplifier must be placed in a sturdy rack or shelf which can safely support the weight of the unit. Adequate space should be provided on all sides of the chassis for proper air flow.

4.4 Electrical Requirements

4.4.1 The HD33568 s require AC power. It is suggested that the wiring to the Amplifier be capable of handling a load of at least 2 times the power output of the Amplifier. The power must be routed through a fused disconnect switch or circuit breaker which can be used to remove all power from the Amplifier. THIS IS AN IMPORTANT SAFETY REQUIREMENT.

NOTE

IT IS THE RESPONSIBILITY OF THE CUSTOMER TO CHECK AND ADHERE TO ALL LOCAL AND NATIONAL ELECTRICAL CODES REGULATING THE INSTALLATION OF THIS EQUIPMENT.

4.5 System Connections

Figure 2 - Rear Panel

4.5.1 Primary Power

4.5.1.1 The HD33568 has a fixed line cord with a 20 Amp L620 plug

4.5.1.2 Connect the appropriate plug to line cord or connect line cord to distribution panel

4.5.1.3 When needed use the circuit breaker to apply AC power to the RF Amplifier.

4.5.2 RF Output

4.5.2.1 Connect an appropriate 50-ohm coaxial cable to the RF output connection on the rear of the Amplifier and a suitable load. Depending on the output power rating of the Amplifier, load configuration, and application, several coaxial cable types can be used. Contact HD Communications Corporation to help select the cable appropriate for your application.

4.5.2.2 Be sure to install the interlocked cover over the RF output connector to ensure the RF output interlock is closed. If the cover is not in place properly, the interlock will be open, and the Amplifier will not operate.

WARNING

Do not enable mains power or operate the RF Generator without connecting a suitable load to the RF Output. Operating without a suitable load connected to the RF Output may be hazardous.

4.5.3 Other rear panel connections

4.5.3.1 Ground – Stud to connect Amplifier chassis ground. This is used for **RF grounding** and not AC power input grounding.

Chapter 5 Serial Interface

5.1 Serial Interface Hardware

5.1.1 The serial connector is a DB9 female located on the rear panel of the Amplifier . Serial control and status signals are available at this connector for operation of the Amplifier . The Amplifier responds to inputs from this connector when the Amplifier 'Settings' are set to 'Serial'.

5.1.2 Follows are detailed pin descriptions for this connector.

Pin	Signal	Description
1		No Connection
2	TX– RS232	Transmit Data
3	RX– RS232	Receive Data
4		No Connection
5	COM	Common Return (ground)
6		
7		
8		
9		

Table 1 – Serial Interface Pin-out

5.2 Serial Interface Commands

5.2.1 The RS232 interface is set up as follows:

- 19200 BAUD
- 8 Bit Data
- 1 Stop Bit
- No Parity
- No Handshake

5.2.2 All serial commands must be terminated with an "ENTER" key. This key is the ASCII character code for Carriage Return. It is a decimal value "13", or and 8-bit value of "00001101".

Command	Option	Description
AFA	<VALUE>	Changes the Maximum Frequency
AFF	<VALUE>	Changes the current RF Frequency
AFI	<VALUE>	Changes the Minimum Frequency
AFS	<VALUE>	Changes the Strike Frequency

Command	Option	Description
CML	<0, 1, 2>	Changes the Levelling Mode (Forward, Load, DC Bias)
CMR	<0, 1, 2>	Changes the RF Control Source (Local, Remote, Serial)
CMS	<0, 1, 2>	Changes the Setpoint Source (Local, Remote, Serial)
CXE	<+/->	Sets External/Internal CEX Source
CXL	<VALUE>	Sets the Internal CEX Level
CXP	<VALUE>	Sets the Internal CEX Phase
ECH		Toggle Serial Echo
FOR		Returns the Forward Power.
GFI		Returns all stored frequency information
GMI		Returns all current Metering data
GPI		Returns all stored pulsing information
GRF		Returns all relevant RF information
GRI		Returns all stored ramping information
ILK		Returns the Interlock fault registers as decimals.
LIT	<+/->	Enables/Disables Link Integrity Checking
LPE	<+/->	Toggles Linear Amplifier Mode
MON	<+/->	Toggles the Monitor Scale (5v / 10v)
OFF		Turns off RF
P1D	<VALUE>	Changes the Duty Cycle of the PWM
P1F	<VALUE>	Changes the Frequency of the PWM
PAI		Returns the PA 1 and PA 2 currents
PAV		Returns the current DC Voltage
PLS	<+/->	Enables or Disables Pulsing
REF		Returns the Reflected Power.
RF	<+/->	Turns on/off RF. If RF is already on, nothing happens.

Command	Option	Description
RFT		Returns how long RF has been on.
RMA	<VALUE>	Sets the Ramping Start Power
RMD	<VALUE>	Sets the Ramping Down Time
RME	<+/->	Enables or Disables Ramping
RMO	<VALUE>	Sets the Ramping Stop Power
RMU	<VALUE>	Sets the Ramping Up Time
RSC	<+/->	Switches between RS-232 and RS-485
RSR		Returns the status register as a decimal.
SBD	<0,1,2,3,4,5,6,7,8,9>	Changes the serial COM baud rate based on preset values.
SCM	<+/->	Enables or disables serial computer mode
SET	<VALUE>	Changes the Setpoint

Table 2 – Serial Commands

Chapter 6 Active Display Operation

6.1 Display Overview

6.1.1 When the Amplifier is first turned on, the front panel display will go through a startup routine. When completed, the status screen will appear.

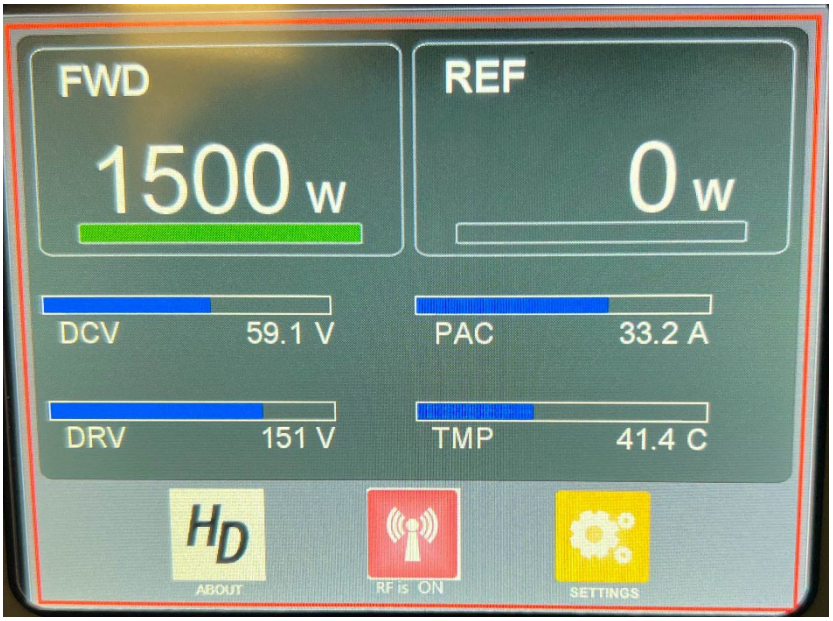

Figure 3 – Initial Active Display

6.1.2 This screen will be a general display of all the operating parameters of the Amplifier .

6.1.3 The Forward and Reflected Power will be continuously displayed.

6.1.4 Power amplifier DC voltage, Drain voltage, PA Current, and heat sink temperature are constantly displayed.

6.1.5 About, RF On and Settings buttons are also available.

6.2 Front Panel Commands

6.2.1 When in ‘Local’ mode, the RF On/Off button  is used to turn the RF on or off. When RF is on, The RF On/Off button will turn red. The border color of all screens will also be red. This is an indicator from any screen that RF is on.

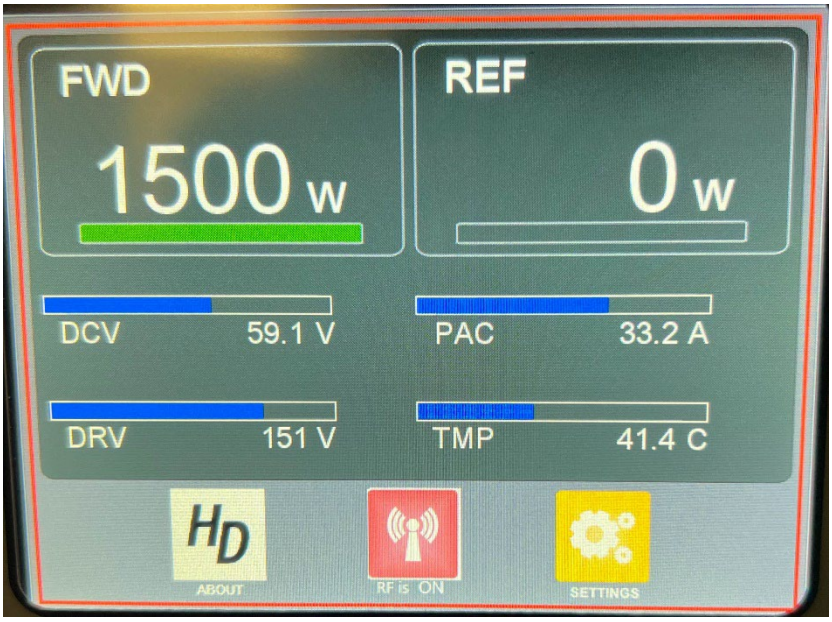

Figure 6 - Local Mode

6.2.2 .

6.2.3 Settings – By tapping this icon  the following screen will appear.

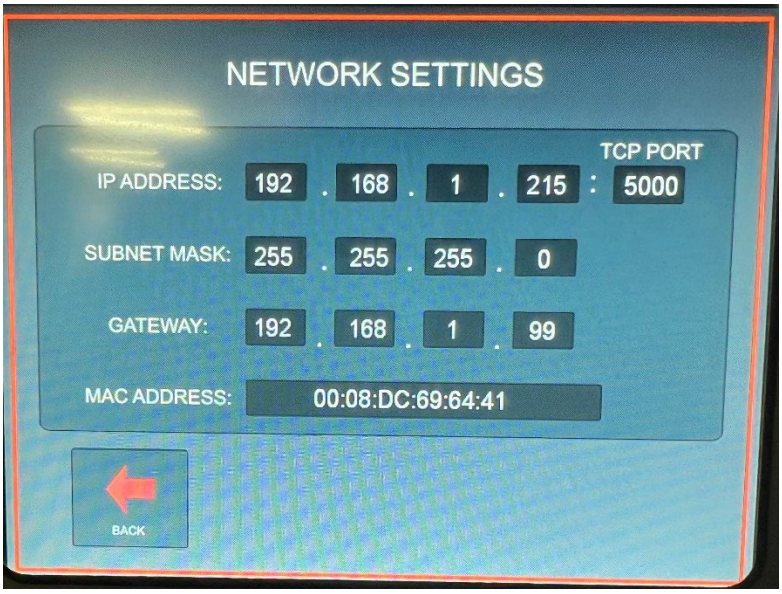

Figure 4 - Settings Screen

6.2.3.1 By tapping any of the inputs, a numeric keypad will pop up allowing you to set all of the necessary values for TCP/IP operation.

6.2.4 HD Communications About – By tapping this icon the following screen will appear.

This screen will give information about the specific Amplifier .

6.2.4.1 By tapping the “X” in the top right corner, if the RF is on you will be returned to the RF Power page. If the RF is off, you will be returned to the Main Menu

Chapter 7 Initial Turn On Procedure

WARNING:

THIS RF GENERATOR USES HIGH VOLTAGE! YOU CAN BE SERIOUSLY INJURED OR KILLED BY THE AC LINE. ALWAYS USE EXTREME CARE WHEN WORKING ON ANY HIGH-POWER ELECTRICAL EQUIPMENT.

7.1 AC Power Connection

7.1.1 Confirm that AC power is disconnected to the Amplifier (Customer installed AC disconnect is in the OFF position).

NOTE:
FOLLOW THIS PROCEDURE EXACTLY WHEN PLACING THE GENERATOR IN OPERATION FOR THE FIRST TIME. THE PROCEDURE IS DESIGNED TO FIND INSTALLATION PROBLEMS BEFORE ANY DAMAGE OCCURS TO THE GENERATOR. IF AT ANY STEP IN THE PROCEDURE, THE REQUIRED RESPONSE IS INCORRECT, STOP AND FIND THE PROBLEM BEFORE CONTINUING.

7.2 Installation Checkout

7.2.1 Recheck all electrical and mechanical details for conformance to requirements set out in Connections and Interface and Mechanical Specifications.

7.2.2 Ensure that all covers are in place on the chassis.

7.2.3 Check that all air intake and exhaust areas are clear from obstructions.

7.3 Grounding

WARNING:
Do not turn on power until unit is properly grounded.

7.3.1 A stud is located on the rear panel of the unit. Proper grounding to this stud minimizes or eliminates radio frequency interference. Improper ground connections can result in poor RF performance and cause unusual problems. Please take care to use good practices when implementing a RF ground

7.4 Initial Turn On Procedure

7.4.1 Recheck that the AC Power to the Amplifier is correct. Turn OFF the customer-supplied external disconnect.

7.4.2 Recheck that the RF transmission line and load are properly connected.

CAUTION

IT IS PRESUMED THAT THE GENERATOR IS TO BE OPERATED ON THE FREQUENCY AND AT THE POWER LEVEL FOR WHICH IT WAS OPTIMIZED AT THE FACTORY. CONSULT QEI TECHNICAL SUPPORT NOW IF ANY CHANGES ARE REQUIRED.

WARNING

THE NEXT STEP WILL APPLY AC POWER TO THE GENERATOR. BEFORE PROCEEDING, VERIFY THAT ALL PERSONNEL ARE CLEAR OF ELECTRICAL HAZARDS. THIS INCLUDES PERSONNEL NEAR THE LOAD.

7.4.3 Be sure the RF Output of the Amplifier is connected.

7.4.4 Apply AC Power to the Amplifier (turn external customer supplied disconnect ON). Be sure the circuit breaker on the rear of the amplifier is ON. Turn the power switch on the front of the Amplifier ON. The front panel display will go through a loading procedure. The Amplifier is now ready for operation.

7.5 Tuning Procedure

7.5.1 Be sure that the amplifier is ready for operation. Section 7.4.

7.5.2 Be sure the rear panel ANTENNA connector is connected to a proper load or antenna.

7.5.3 Set the GAIN control on the rear panel to a minimum (full counter-clockwise)..

7.5.4 Ensure that the exciter output is less than 5 Watts.

7.5.5 Set the exciter to the operating frequency.

7.5.6 Key the exciter. You should have an indication of power output from HD33568.amplifier.

7.5.7 Check the forward and reflected power. The reflected power should be very low (less than 10% of the forward power). If not, you should check your load or antenna and transmission line.

7.5.8 If you have forward power and the reflected power is low, slowly adjust the GAIN control on the rear panel for the desired power output. If needed, also increase the exciter output power to reach the desired output power. **Note: If you exceed 1500 Watts, the amplifier will give a warning to reduce power.**

7.6 Normal Operation

7.6.1 Local Control – Use the front panel display for operation in this mode.

7.6.2 Remote Control – Use the Analog Input on the rear panel for operation in this mode. Refer to section Setpoint Source for details.

7.6.3 Serial Control - Use the Serial Input on the rear panel for operation in this mode. Refer to section Serial Interface and Serial Interface Commands for details.

Chapter 8 Warranty

All HD33568 equipment designed and manufactured by HD Communications Corporation is warranted against defects in workmanship and material that develop under normal use within a period of eighteen (18) months (unless stated otherwise on the Product Quote) from the date of original shipment subject to the following conditions and limitations:

8.1 Conditions and Limitations

8.1.1 The purchaser is not in default under his contract of purchase.

8.1.2 The sole responsibility of HD Communications Corporation for any equipment not conforming to this warranty shall be, at QEI's option:

8.1.2.1 To repair or replace such equipment or otherwise cause it to meet the represented specifications either at the purchaser's installation or upon return thereof F.O.B. Williamstown, New Jersey, as directed by HD Communications Corporation; or

8.1.2.2 To demonstrate that the equipment has no defect in workmanship or material and that it meets the represented specifications, in which event all expenses reasonably incurred by HD Communications Corporation in so demonstrating including but not limited to cost of travel to and from the purchaser's installation, and subsistence, shall be paid by purchaser to HD Communications Corporation.

8.1.3 In case of any equipment thought to be defective, the purchaser must, within seven (7) days notify HD Communications Corporation, in writing (fax or e-mail is acceptable), giving full particulars as to the defects. Upon receipt of such notice, HD Communications Corporation will give instructions respecting the shipment of the equipment, or such other manner as it elects to service this warranty as above provided.

8.1.4 Equipment shall not be deemed to be defective if, after examination by HD Communications Corporation, the equipment evidences damage from moisture, temperature, lightning, improper handling, installation, operation, accident, or abuse.

8.1.5 This warranty extends only to the original purchaser and is not assignable or transferable.

NO OTHER WARRANTIES, EXPRESS OF IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE APPLICABLE TO ANY EQUIPMENT SOLD BY HD COMMUNICATIONS CORPORATION, AND NO REPRESENTATIVE OR OTHER PERSON IS AUTHORIZED BY HD COMMUNICATIONS CORPORATION TO ASSUME FOR IT ANY LIABILITY OR OBLIGATION WITH RESPECT TO THE CONDITION OR PERFORMANCE OF ANY EQUIPMENT SOLD BY IT, EXCEPT AS PROVIDED IN THIS WARRANTY. THIS WARRANTY PROVIDES FOR THE SOLE RIGHT AND REMEDY OF THE PURCHASE AND HD COMMUNICATIONS CORPORATION SHALL IN NO EVENT HAVE ANY LIABILITY FOR CONSEQUENTIAL DAMAGES OR FOR LOSS, DAMAGE, OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF THE EQUIPMENT PURCHASED FROM HD COMMUNICATIONS

CORPORATION.

Chapter 9 QEI Contact Information

9.1 Service

For service on any HD Communications Products, contact:

HD Communications Corporation
338 Jericho Turnpike, Unit 387
Syosset, NY 11791
USA

Telephone: +631-588-3877
e-mail: sales@hdcom.com
web: www.hdcom.com

9.2 RMA Request

9.2.1 Please contact HD Communications for a Return Material Authorization (RMA) before returning any products to HD Communications. Any products returned without a proper RMA may have a delay in service.

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