COM-POWER

OPERATION MANUAL

For the

ACS-250-100W

150 kHz to 250 MHz

100W Power Amplifier

Table of Contents

Important Safety Precautions

Safety Symbol Guide

	**ATTENTION** **Refer Manual**
	WARNING High Voltage

- Do not attempt to disassemble the instrument. Please contact our service department.
-  AC power input should be within the voltage range specified on the rear panel. Please ensure that the correct fuse is installed prior to applying power for the first time.
-  To avoid electrical shock, the power cord protective grounding conductor must be grounded.
-  In order to protect against fire, replace the fuse with the specified type only. Make sure to disconnect the power cord before replacing the fuse. A blown fuse is indicative of a problem with the instrument. The problem must be repaired before replacing the fuse.
- It is important to always keep the front panel connectors clean.
- Disconnect the AC power cord from the instrument before cleaning. Use a soft cloth dipped in a solution of mild detergent and water. Do not spray any liquid onto the unit. Do not use any cleaners containing benzene, toluene, xylene, acetone and/or any other harsh chemicals.

-  Do not exceed +3 dBm into the RF INPUT.
- Do not place heavy objects on top of the instrument.
- Avoid any rough handling that could damage the ACS-250-100W unit.
- Use electrostatic discharge precautions while handling and making connections to the ACS-250-100W unit.
- Do not insert wires into the connectors of the ACS-250-100W. Make proper connection with mating connectors and/or adapters.
- Do not block or obstruct the cooling fan vents located on the top, side and rear side of the unit.

Introduction

The Com-Power model ACS-250-100W broadband power amplifier operates from 150 kHz to 250 MHz. This amplifier can be used for EMC immunity testing that requires generating electric fields. This small and lightweight amplifier utilizes class AB linear power devices that provide high gain, and wide dynamic range. By employing advanced components, the Com-Power ACS-250-100W amplifier is able to achieve high efficiency operation and reliability.

Product Specifications

Frequency Range	…	150 kHz - 250 MHz
Power Output:		
Rated Output	…	100 watts into 2:1 VSWR
Power Protection Limit	…	140 watts
Output Power @ 1dB compression	…	No Compression upto 100W
Gain	…	50 dB ± 2 dB
Input for rated output	…	0 dBm (Typical)
Input:		
Impedance	…	50 ohms, nominal
VSWR	…	1.7 maximum
Modulation on input	…	AM, FM, or pulse modulation
Connector	…	Type N-Female (on Front Panel)
Output:		
Impedance	…	50 ohms, nominal
VSWR	…	1.7 maximum
Harmonic distortion	…	15 dBc (min) at 100 watts
Mismatch Tolerance	…	VSWR of 5:1
Connector	…	Type N-Female (on Front Panel)
Line Power	…	Single-phase
Type: Universal	…	100-250 Volts ac, 50/60 Hz, 400 VA Power
Fuse:	…	250V, 5 Amps (T)

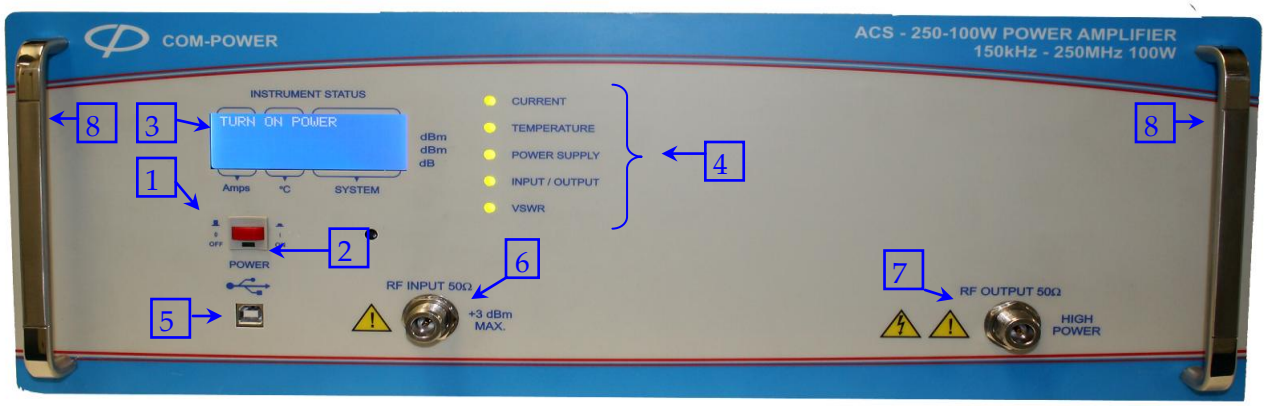
Display and Interfaces	…	USB Remote Interface
Front panel display	…	Continuous monitoring and display of Temperature, Current, Input / Output Power, VSWR and Gain

Mechanical:

Cooling Requirement	…	Forced air (self contained fans)
Size	…	19" Rack 4U
Weight	…	21.4 kg (47 lb.)
Operating Temperature	…	0^{o} C to 50^{o} C

Front/Rear Panel

Front Panel:



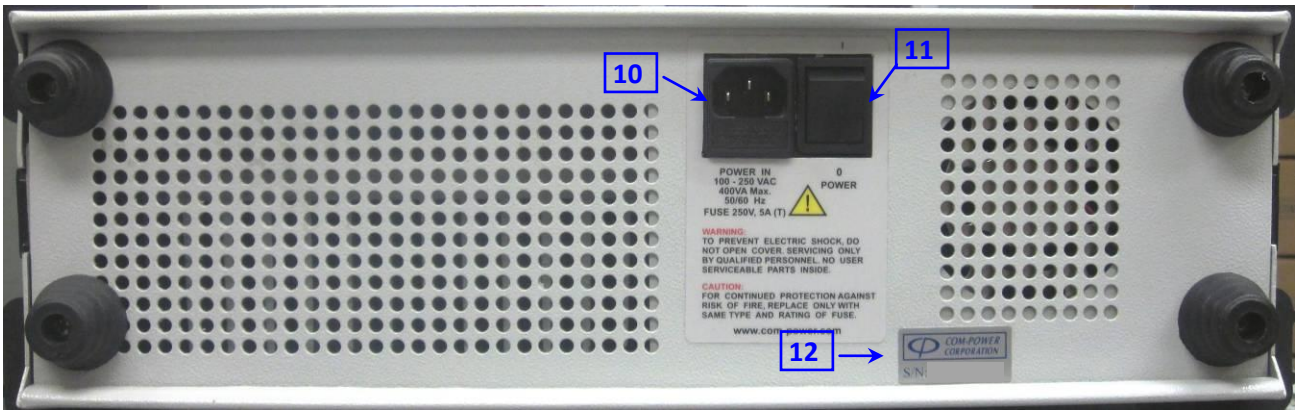
1. RF output ON/OFF switch
2. Indicates RF output is ON when green light is lit
3. LCD display
4. Fault indicators
5. USB interface- for factory programming/maintenance.
6. RF input port- secure all connections required for the 50 ohm system prior to turning on the RF output.

   Caution: Although it has a auto shutoff in case of input levels above +3 dBm. Application of high power input signal or transients may damage the power amplifier.
7. RF output port- secure all the connections required for the 50 Ohm system prior to turning on the RF output.

Caution: High power output present at the output port when unit is operating, which could lead to serious injuries to user. Do not touch the connector when the unit is ON.

8. Handles

Rear Panel:

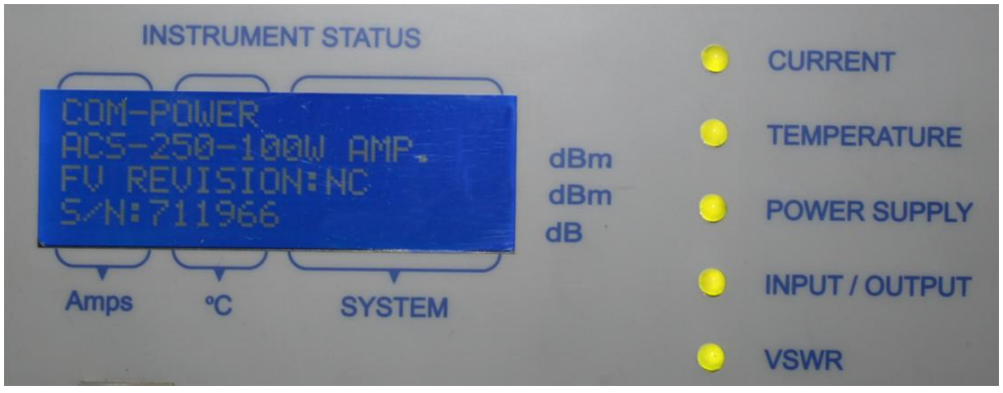


10. Mains power input to unit with inbuilt fuse socket. The power input can be between 100V AC to 250VAC,47-63Hz, 400VA. The unit auto detects the power supply voltage. The fuse provides primary AC circuit protection. In case of failure of Fuse, replace only with the rated fuse {5x 20 mm 250 V, 5A, (T)}
11. AC supply power ON switch
12. Serial number of unit.

Amplifier Operation

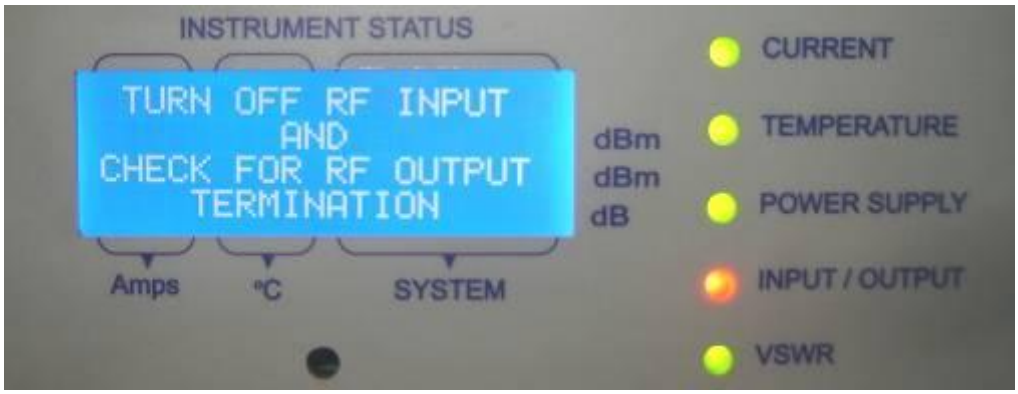
1. Before turning on the unit, make sure the RF input and output ports on the front panel are connected to their respective 50Ω input/output devices.
2. Turn on power switch on rear panel.

The following messages will be displayed on LCD.



In normal condition following message will be displayed

NOTE: Prior to turning the front panel power switch ON, p*lease ensure that the RF output of the RF signal source connected to the Amplifier input is turned off* or below -45 dBm. When the front panel power switch is turned ON, the ACS-250-100W performs a "*self test*". ACS-250-100W does not allow the presence of an input signal greater than -45 dBm during the self test and the presence of an input signal will automatically disable the output and display the following message until RF input is reduced below -45 dBm.

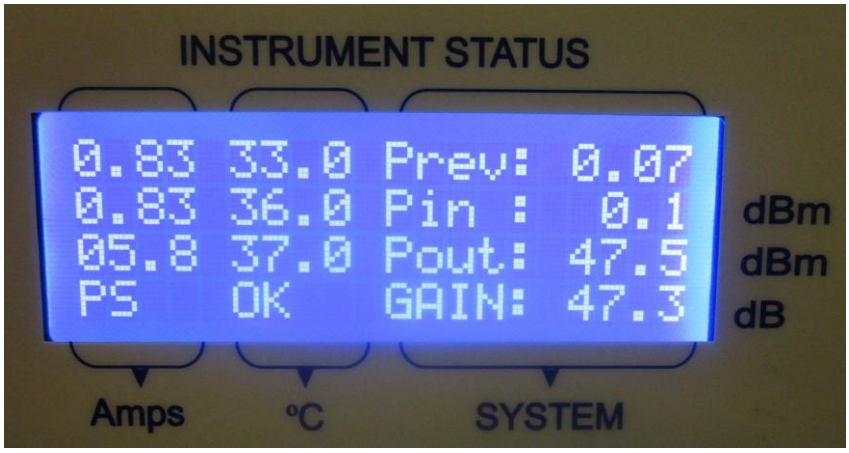


3. Turn on switch from the front panel as shown in picture.

Upon successful completion of the self test mode the LCD screen will display the Driver 1 & 2 Current/Temperature, Module Current/Temperature and System Status.

Please note that Pin, Pout, SWR and Gain will not be displayed until the amplifier sees an input of -45dBm.

4. When the RF input is applied (in excess of -40 dBm), the front panel LCD displays the actual measured values for Pin, Pout, SWR, and Gain. The current and temperature status of PA and Driver is always displayed regardless of the input state.



Displayed indications and their meanings:

Driver1	=	Driver1 Current/Temperature (Line 1, columns 1/2 on LCD)
Driver2	=	Driver2 Current/Temperature (Line 2, columns 1/2 on LCD)
PA	=	PA Module Current/Temperature (Line 3, columns 1/2 on LCD)
PS	=	Power Supply status (Line 4 on LCD)
Prev	=	Reflected Power sensed at the RF output (Line 1, column 3 on LCD)
Pin	=	Input Power to the unit (Line 2, column 3 on LCD)
Pout	=	Output Power of the unit (Line 3, column 3 on LCD)
Gain	=	Gain of the unit (Line 4, column 3 on LCD)

5. Before switching off the power from the front panel, make sure the RF output is reduced to a safe level (-50 dBm) or completely disabled.
6. In the event of any fault occurring, the unit will automatically shut down.

7. Depending on the nature of the fault the appropriate red LED will be light up and the corresponding fault message will be displayed on front panel LCD.

8. In order to restart the unit, first turn off the front panel switch, and then restart the unit as described in Section 3.

9. Please refer to the Diagnostics chart below to check fault conditions

SR.#.	*FAULT LIGHT LIT*	*MESSAGE ON LCD SCREEN*	*FAULT*	**POSSIBLE CAUSE**
1	Current	PA CURRENT RANGE EXCEEDED OR DRIVER CURRENT RANGE EXCEEDED	Indicates that the current through the module exceeds 9.0 Amperes or the driver current exceeds 2.00 Amperes.	* Power limit was exceeded * Mismatch on 50-ohm System * VSWR of the system is too high
2	Temperature	PA TEMPERATURE RANGE EXCEEDED OR DRIVER TEMPERATURE RANGE EXCEEDED	Indicates that the temperature range of the module or driver has risen higher than 65 ˚C.	* Mismatch on 50-ohm system * VSWR of the system is too high
3	Power Supply	POWER SUPPLY BAD	Indicates that the DC power supply is not working properly.	* DC power supply failed * AC input zero cross detector failed * Excessive current draw due to device failure.
4	RF Input / RF Output	RF INPUT EXCEEDS +3 dBm OR RF OUTPUT EXCEEDS +48.2 dBm	Indicates either input or output power has exceeded internal limit.	* Input power limit was exceeded. * Output power limit was exceeded.
5	VSWR	Reflected Power > 85 Watts	Indicates that the reflected power to the Power amplifier has exceeded internal limits.	* Check output connection of unit and connected system.