

# COM-POWER

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## INSTRUCTION MANUAL

*For the*

### ACS-230-25W

150 kHz to 230 MHz

25W Power Amplifier



# Table of Contents



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- ❖ Important Safety Precautions.....3
- ❖ Introduction.....5
- ❖ Product Specifications .....6
- ❖ Front/Rear Panel.....8
- ❖ Amplifier Operation.....10


# Important Safety Precautions

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## *Safety Symbol Guide*

	<b>ATTENTION</b> <b>Refer Manual</b>
	<b>WARNING</b> <b>High Voltage</b>

- 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-250-25W unit.
- Use electrostatic discharge precautions while handling and making connections to the ACS-250-25W unit.
- Do not insert wires into the connectors of the ACS-250-25W. 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

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Com-Power model ACS-230-25W series broadband amplifiers operate from 150 kHz to 230 MHz. This amplifier can be used for EMI 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-230-25W amplifier is able to achieve high efficiency operation and reliability.

## Product Specifications:-

<b>Frequency Range</b>	...	150 kHz - 230 MHz
<b>Power Output:</b>		
Rated Output	...	25 watts into 2:1 VSWR
Power Protection Limit	...	30 watts
Limit@ 1dB compression	...	40 watts
<b>Gain</b>	...	44dB ± 2 dB
<b>Input for rated output</b>	...	0 dBm Typical
<b>Input:</b>		
Impedance	...	50 ohms, Nominal
VSWR	...	1.7 maximum
Modulation on input	...	AM, FM, or pulse modulation
Connector	...	Type N on Front Panel
<b>Output:</b>		
Impedance	...	50 ohms, Nominal
VSWR	...	1.7 maximum
Harmonic distortion	...	20 dBc (min) at 25 watts
Mismatch Tolerance*	...	VSWR of 5:1
Connector	...	Type N on Front Panel
<b>Line Power</b>	...	Single-phase
Type: Universal	...	100-240 Volts ac, 47-63 Hz, 300 VA Power

## Display and Interfaces

Front panel display

... USB Remote Interface

... Continuous monitoring and display of Temperature, Current, Input / Output Power, VSWR and Gain

## Mechanical:

Cooling Requirement

... Forced air (self contained fans)

Size

... 19" Rack 2U

Weight

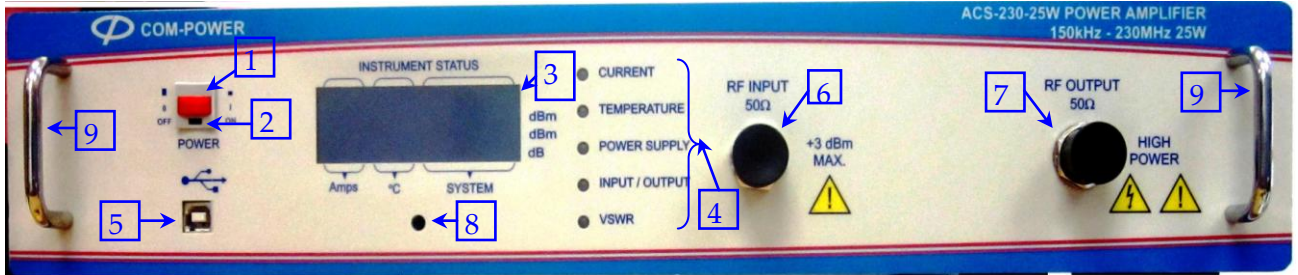
... 14.1 Kg (31 lb.)

Operating Temperature


... 0° C to 50° C

# Front/Rear Panel


## Front Panel:



1. RF ON/OFF Switch
2. Indicates Power is ON when Green Light is lit
3. LCD Display
4. Fault Indicators
5. USB Interface- for remote sensing and external data controls.
6. RF Input Port- make the connections required for the 50 Ohm system before turning on the unit.

 **Caution:** Although it has an 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- make the connections required for the 50 Ohm system before turning on the unit.

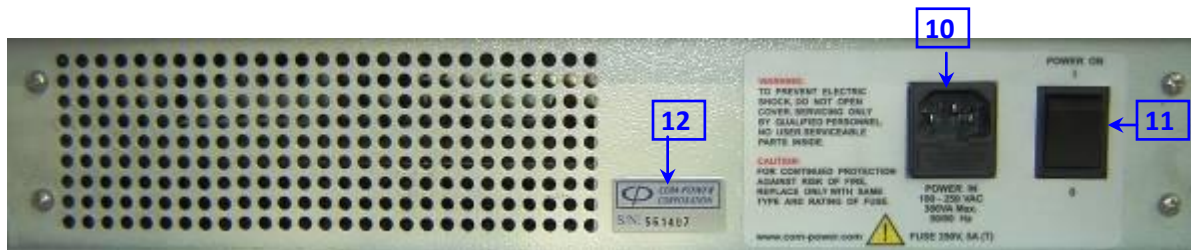
 **Caution:** High power output present at the output port when unit is operating, which could lead to serious injuries to user. Do not touch the connector when the unit is ON.


8. Buzzer



## 9. 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

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1. Before turning on the unit, make sure the RF Input and Output connectors on the front panel are terminated with 50 Ohms system.
2. Turn on power from rear panel.



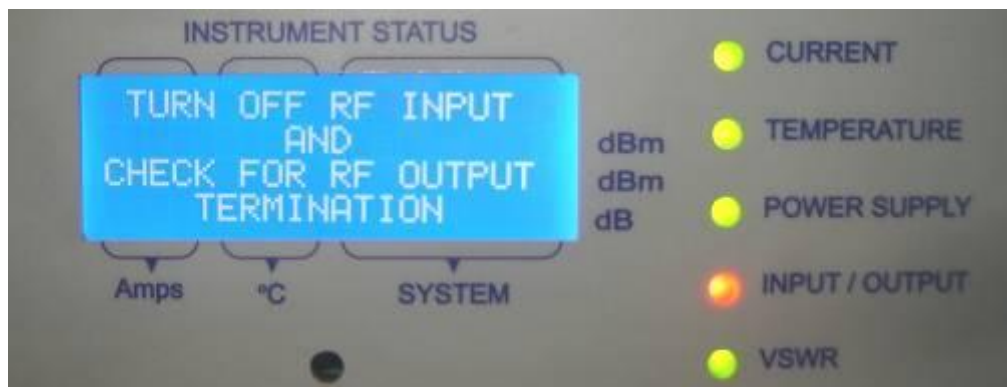
Following message will display on LCD.



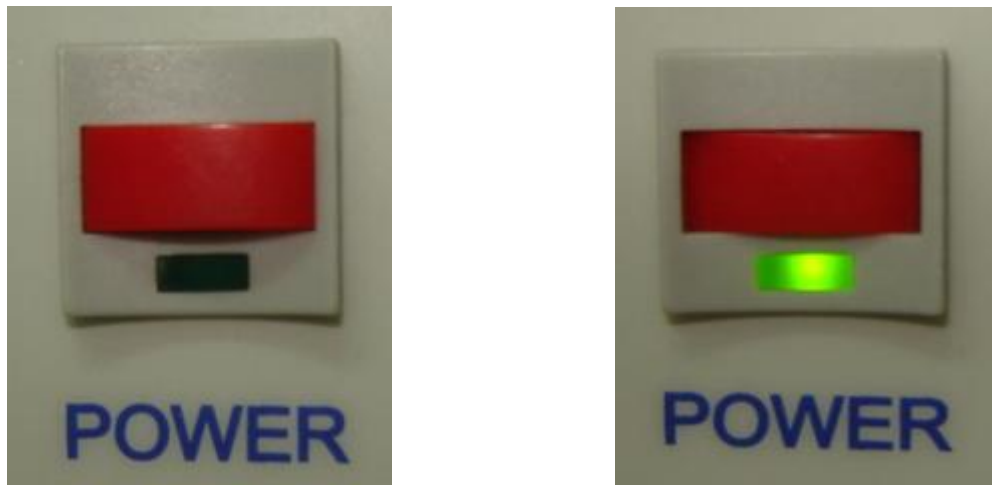
In normal condition following message will be displayed



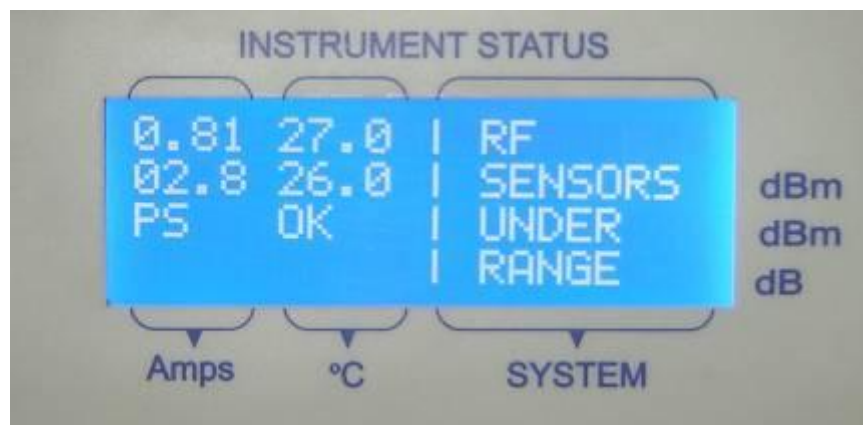
**NOTE:** Prior to turning the Front panel power switch ON, *Please ensure that the RF output of the RF signal source connected to the Amplifier input is turned off or below -45dBm.* When the unit turns on the ACS-230-50W system starts a *self test.* ACS-230-50W system does not allow to have any RF input signal greater than -45dBm. If any RF input signal is present before completion of self test the unit will automatically turn off and the following message will be displayed until RF input is reduced below -45dBm or Turned Off.



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

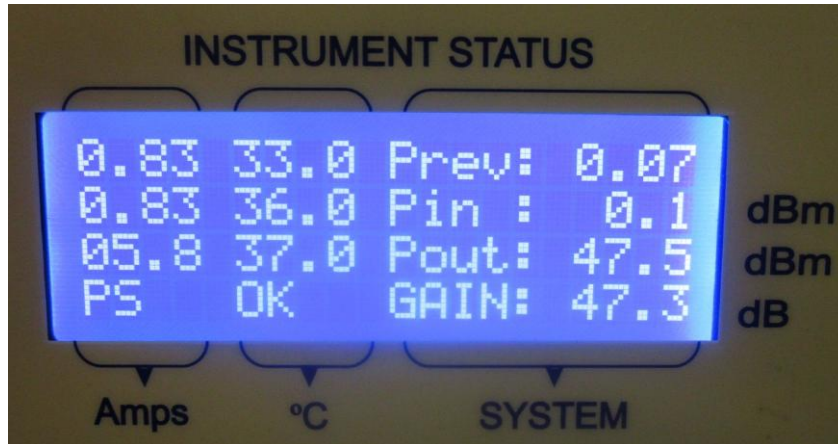


Upon successful completion of self test mode, LCD screen will display the Driver 1& 2 Current/Temperature, Module Current/Temperature and System Status.



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.



*Displays with its meaning:*

- Driver1 = Driver1 Current/Temperature (Line 1, columns 1/2 on LCD)
- Driver2 = Driver2 Current/Temperature (Line 2, columns 1/2 on LCD)
- PA = Module Current/Temperature (Line 2, columns 1/2 on LCD)
- PS = Power Supply status (Line 3 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 to 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 below Diagnostics chart to check fault conditions

SR.#.	<b>FAULT LIGHT LIT</b>	<b>MESSAGE ON LCD SCREEN</b>	<b>FAULT</b>	<b>POSSIBLE CAUSE</b>
1	Current	PA CURRENT RANGE EXCEEDED OR DRIVER CURRENT RANGE EXCEEDED	Indicates that the current through the module exceeds 6.3 Amperes or the driver current exceeds 1.2 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 +45 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 > 21 Watts	Indicates that the reflected power to the Power amplifier has exceeded internal limits.	* Check output connection of unit and connected system.