



Instruction Manual and Quick Start Guide
Solid State RF Amplifier SSPA System
AA-1840G-25
18.0 – 40.0 GHz, 25W Min, 44 dB Min



Table of Contents

SAFETY INSTRUCTIONS	3
SPECIFICATIONS	4
ELECTRICAL SPECIFICATIONS: 50Ω, 25°C	4
ENVIRONMENTAL CHARACTERISTICS	4
MECHANICAL SPECIFICATIONS	4
AVAILABLE SPECIAL OPTIONS	4
OPERATING INSTRUCTIONS	5
& GENERAL INFORMATION	5
INTRODUCTION	5
INCOMING INSPECTION	5
RF & AC CABLE CONNECTION	5
RF TURN ON PROCEDURE	5
RF TURN OFF PROCEDURE	5
DECLARATION OF CE CONFORMITY	6
LIMITED WARRANTY	6
CONTACT INFORMATION	6
AA-1840G-25 System Outline	7
AA-1840G-25 System View, Front	8
AA-1840G-25 System View, Rear	9

SAFETY INSTRUCTIONS

BEFORE USING THIS EQUIPMENT

Read this manual and become familiar with safety markings and instructions.
Inspect unit for any sign of external damage. Do not use this equipment if there is physical damage or missing parts.
Verify the input AC voltage to the main power supply

INTENDED USE

This product is intended for general laboratory use in a wide variety of industrial and scientific applications.

RF OUTPUT LOAD & PROPER GROUNDING REQUIRED

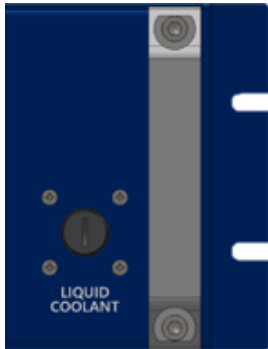
The RF output connector must be connected to a load before the AC switch is on.
AC & RF power must be off before disconnecting the output load or other components.
The main power source to the equipment must have an uninterrupted safety ground that has sufficient size to the power cord.

REPAIR & MAINTENANCE

All repair or maintenance work must be performed by a factory authorized technician in order to extend the operating life of this equipment and not to void any outstanding warranty.

COOLING SYSTEMS:

Our equipment uses either forced air cooling or our Quiet-Cool (Closed Air-Liquid Cooling). For Both systems all air inlets and outlets must be cleared and free of blocking at all time at least 3.0 inches of clearance. Insufficient air flow will result in damaged equipment. Also, Our Quiet-Cool systems (Closed Air-Liquid Cooling), We recommend inspection and/or maintenance every two years for normal operational environments. If the ambient temperature is higher than normal or airflow is limited the fluid should be checked every three months. The coolant that should be used is Koolance 702 Liquid Coolant, High Performance UV Blue about 350ml (12 oz.) or equivalent. The fill hole for the reservoir is located usually on the side panel and some units comes with an LED to view the reservoir level. Please contact the factory for more information.



SAFETY SYMBOLS



This symbol is marked on the equipment when it is necessary for the user to refer to the manual for important safety information. This symbol is indicated in the Table of Contents to assist in locating pertinent information.



Dangerous voltages are present. Use extreme care.

CAUTION:

The caution symbol denotes a potential hazard. Attention must be given to the statement to prevent damage, destruction or harm.



This symbol indicates protective earth terminal

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS: 50Ω, 25°C

Parameter	Specification	Notes
Operating Frequency Range	18.0 - 40.0 GHz	
Power Output @ Psat	25 Watt Min / 30 Watt Typ	CW or Pulse
Power Gain	44 dB Min	0dBm or less for Rated Power
Power Gain Flatness	4.0 dB p-p Max	Constant input power
Gain Adjustment Range	20 dB Typ	Local or remote capable
Input Return Loss	-10 dB Max	
2-Tone Intermodulation (IMD)	-30 dBc Typ	34dBm/Tone, Δ = 1MHz
Harmonics	-20 dBc Max	At rated Pout
Spurious	-60 dBc Max	Non-harmonics
Operating Voltage	100 - 240 VAC	47 - 63Hz
Power Consumption	800 Watt Max	At rated Pout
Input Power Protection	+10 dBm Max ¹	
Load VSWR Protection	4 : 1: Max ² (100% protection)	Foldback @ preset limit
Sample Port Coupling (optional)	-40 dB Nom	2.92 mm K-Female

1 Units with optional digital monitor and control, for basic units <10 Sec without damage

2 Units with optional digital monitor and control, for basic units <1 minute at rated Pout

ENVIRONMENTAL CHARACTERISTICS

Parameter	Specification	Notes
Operating Ambient Temperature	0 to +50 °C	
Storage Temperature	-40 to +85 °C	
Relative Humidity	up to 95 %	Non-condensing
Altitude	3000 meters	
Shock & Vibration	Normal transport ³	

3 MIL Spec available for quotation

MECHANICAL SPECIFICATIONS

Parameter	Specification	Notes
Dimensions W x H x D	430 x 133 x 750 mm	3U, excluding handles
Weight	24 kg.	
RF Connectors In / Out / Sample Port	2.92 mm-F / WRD180 / 2.92mm-F	Front or rear panel
AC Power / Interface Connector	IEC 60320-C14 / 9-Pin D-Sub	Or equivalent (rear panel)
Cooling: Built in Quiet-Cool	Close circuit Air-liquid cooling	
OPTIONAL: Digital Monitor & Control (DMC) FWD, REV, VSWR, GAIN, ALC, V & I, TEMP, Optional Safety Interlock (INT)	Ethernet RJ-45 TCP/IP, RS422/485, USB Optional GPIB Interface Open=STBY/Short=RFON	IEEE rear panel BNC-F rear panel

AVAILABLE SPECIAL OPTIONS

Parameter	Specification	Notes
Option FRS: Forward RF Sample	-40dB, Type K-Female	Front or rear panel
Option RRS: Reflected RF Sample	-40dB, Type K-Female	Front or rear panel
Option GPIB: GPIB remote control	GPIB IEEE-488 Remote capability	
Included CPM: Calibrated Power Monitoring (With purchase of Option DMC)	Offset correction entry for +/- 0.2dB accuracy	12-points standard ⁴

4 Consult the factory if additional points are required.

OPERATING INSTRUCTIONS

& GENERAL INFORMATION

INTRODUCTION

Advanced Amplifiers is an amplifier equipment and services company supporting commercial and government organizations worldwide.

Headquartered in San Diego, California, the company utilizes its global network of resources to effectively serve and support customer requirements.

As a unique original equipment manufacturer of power amplifiers ranging from 10KHz to 40GHz with various output power levels for CW & pulse testing applications, we can also fully support custom designs and manufacturing requirements for both small and large volume procurements. We bring decades of combined experience in the RF field for numerous applications including and not limited to, EMI/EMC, communications, and various commercial and industry standards.

With our in-house capabilities and fully equipped testing facilities, Advanced Amplifiers is committed to provide the best in RF products with industry leading quality and lead times.

INCOMING INSPECTION

Inspect unit for any sign of external damage. Do not use this equipment if there is physical damage or missing parts. Inspect all front and rear panel connectors for damage. Inspect fans and their airways for any damage or blockings. For a unit with a digital controller option, the USB and ethernet interface and commands list is in the second part of the manual.

RF & AC CABLE CONNECTION

RF Input and Output connectors are outlined in the specifications table. Use the standard AC cable that was supplied by the manufacturer or higher power rating cables than the manual specifies. Refer to the front and rear panel description page for the location of RF and AC connectors.

RF TURN ON PROCEDURE

Connect the RF input to a suitable frequency range signal generator. Connect a suitable load for the power rated and continuous operation to the output connector. Turn on the AC switch, display will show STANDBY. Optionally, connect the unit to a digital control Software or Ethernet connection. Set the RF generator to nominal 0dBm and set the desired frequency in the specified range. Select Gain or ALC and set to the desirable output power level then press the ONLINE button. Use the front panel LCD gain adjust or the remote function to adjust the output power on the power meter and the LCD screen to desired levels.

Refer to the Controller manual for detailed operating instructions of the local and remote controller.

RF TURN OFF PROCEDURE

Decrease the RF drive from the RF generator to below -20dBm and press STANDBY on the LCD or via the control software. Turn off AC switch on the front panel. Disconnect any unnecessary cable connections.

DECLARATION OF CE CONFORMITY

We, Advanced Amplifiers Corp, declare under our sole responsibility that the product to which this declaration relates is in conformity with the following standard(s) or other normative document(s):

LOW VOLTAGE DIRECTIVE: 2014/35/EU

SAFETY: EN 61010-1:2010/AMD1:2019

EMC: EN IEC 61326-2021

LIMITED WARRANTY

Advanced Amplifiers warrants that goods delivered hereunder, at the time of delivery, will be free from defects in workmanship and material and will conform to the requirements of the purchase order. Seller's liability hereunder shall be limited to the repair or replacement of defective goods F.O.B. factory of which Seller is notified in writing by Buyer within three (3) years following delivery thereof to Buyer, and in no event will Seller be liable for incidental, special or consequential damages. (Note: One (1) year warranty for moving parts such as fans and power supplies). The foregoing warranty is in lieu of all other warranties express or implied (except as to title), including any implied warranty of merchantability or suitability for purpose or against infringement.

CONTACT INFORMATION

Please send all inquiries to:
Advanced Amplifiers

10401 Roselle Street
San Diego, CA 92121

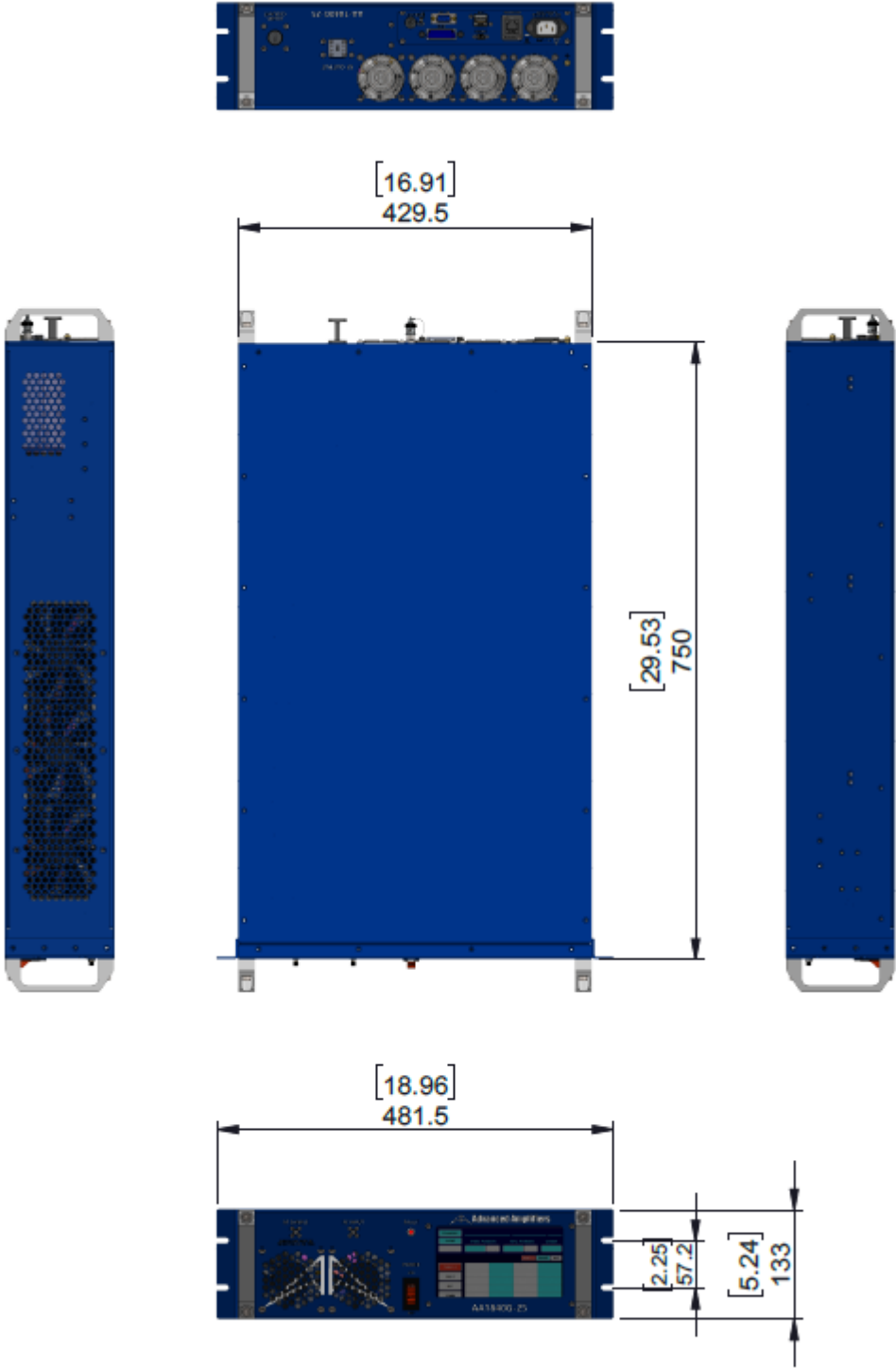
WEB: WWW.ADVANCEDAMPLIFIERS.COM

EMAIL: SALES@ADVANCEDAMPLIFIERS.COM

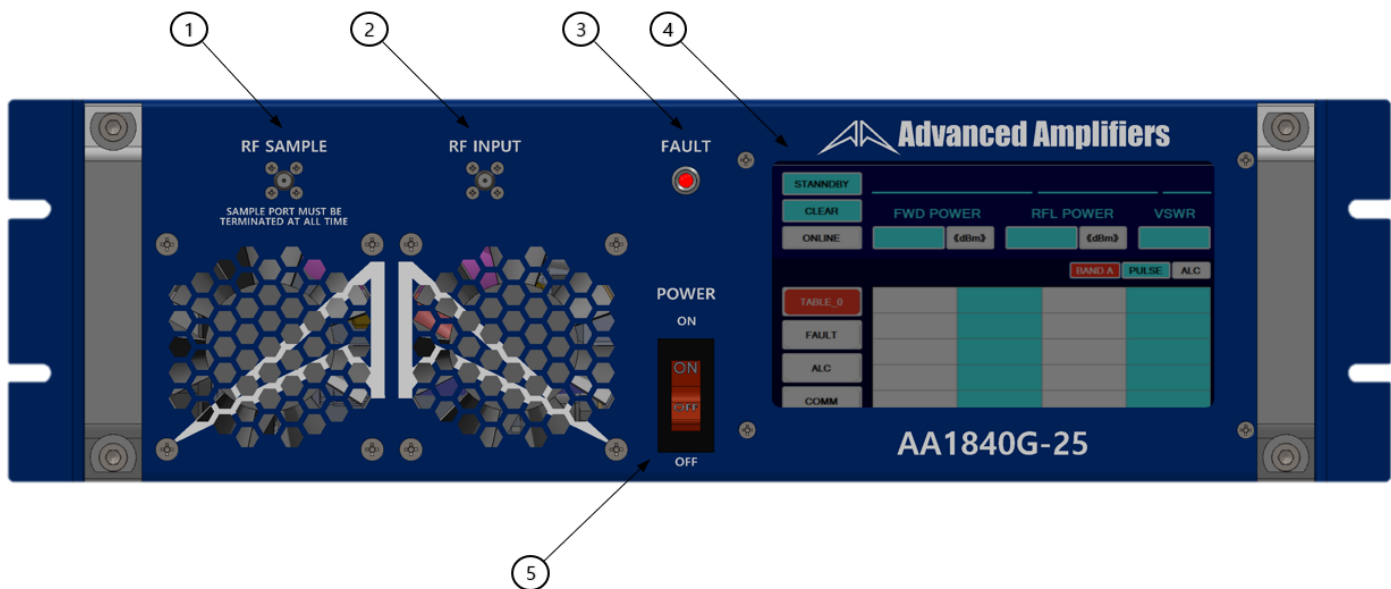
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AA-1840G-25 System Outline

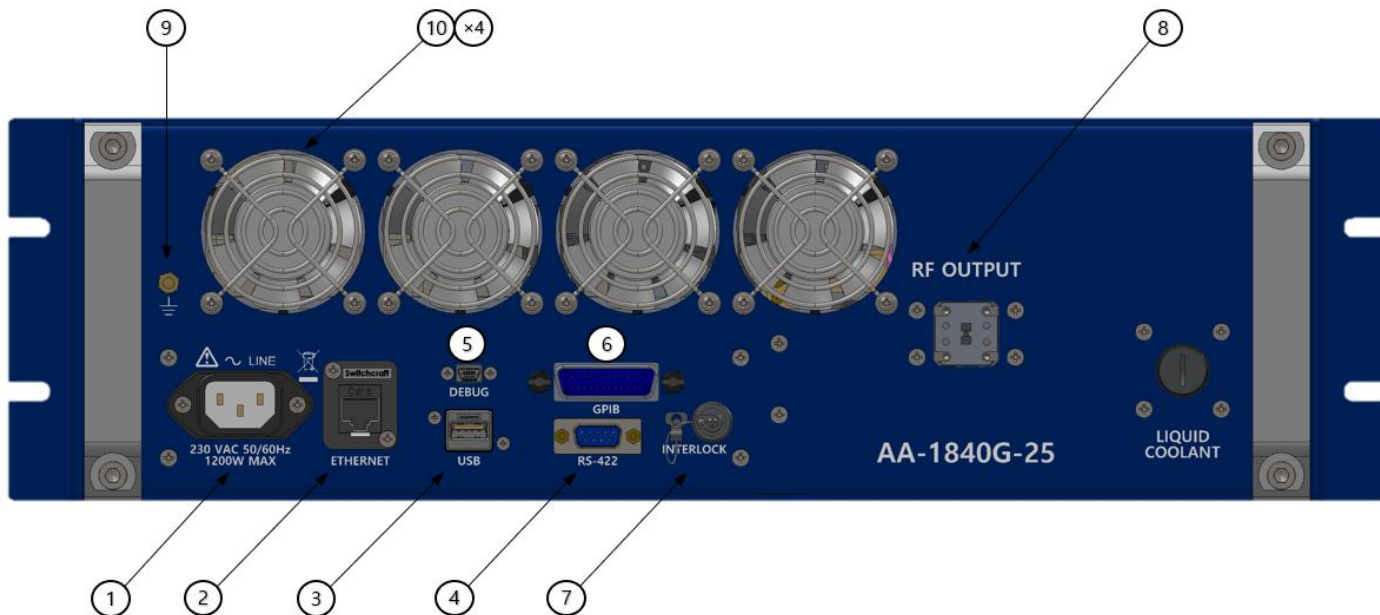


AA-1840G-25 System View, Front



No.	Title	Function
1	RF SAMPLE	N-Female, RF SAMPLE Connector. (SAMPLE PORT MUST BE TERMINATED AT ALL TIME.)
2	RF INPUT	N-Female, RF INPUT Connector.
3	FAULT LED	System Fault LED: Turn ON an LED when Over-Temp, Ext. Shutdown.
4	LCD DISPLAY	7" Touch screen LCD Display, System Control LCD Panel.
5	POWER SWITCH	System Power Switch.

AA-1840G-25 System View, Rear.



No.	Title	Function
1	AC POWER CONNECTOR	230VAC, 50/60Hz, 1200W MAX, IEC60320-14 Connector.
2	ETHERNET	Ethernet Communication Female Connector, RJ-45.
3	USB	USB Communication Connector, Type A Female.
4	RS-422	System RS-422 Communication. P1 TX- P2 TX+ P3 RX+ P4 RX- P5 GND (RS-422) P6 N/C P7 N/C P8 N/C P9 N/C
5	DEBUG	System Controller Debugging Female Connector. Customer should not use this port without permission from the factory.
6	GPIB	IEEE-488 GPIB Interface Connector, Female.
7	INTERLOCK	BNC Female, Safety Interlock Connector Interlock Close Circuit : Normal operation Interlock Open Circuit : RF Off operation
8	RF OUTPUT	WRD180 Waveguide, RF OUTPUT Connector.
9	GND	Frame Ground.
10	Cooling FAN	System Outlet Cooling FAN.