



Instruction Manual and Quick Start Guide
Exodus Advanced Communications
Solid State RF Amplifier System

AA-20M1G-50

20 - 1000 MHz, 50 Watt Min., 47 dB Min.



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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.

FORCED AIR COOLING

This equipment requires forced air cooling. All air inlets and outlets must be cleared and free of blocking at all time. Insufficient air flow will result in damaged equipment.

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	20 - 1000 MHz	
Power Output @ Psat	50 Watt Min ¹	CW
Power Gain	47 dB Min	
Power Gain Flatness	3.0 dB p-p Max	
Input Return Loss	-10 dB Max	Relative to 50 Ohm
2-Tone Intermodulation (IMD)	<-30 dBc Typ	37dBm/Tone, Δ = 1MHz
Harmonics 2 nd / 3 rd	<-25 dBc Typ / -15 dBc Typ	At Rated Pout
Spurious	-60 dBc Max	Non-harmonics
Operating Voltage	100 - 240 VAC	
Power Consumption	350 Watt Max	At rated Pout
Input Power Protection	+8 dBm Max	<10 Sec without damage
Load VSWR Protection	∞ : 1	<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	5 to 95 %	Non-condensing

MECHANICAL SPECIFICATIONS

Parameter	Specification	Notes
Dimensions W x H x D	430 x 88 x 562 mm	2U excluding handles
Weight	10 kg.	
RF Connectors In/Out	Type-N Female	Front or rear panel
AC Power / Interface Connector	IEC 60320-C14 / 9-Pin D-Sub	
Cooling	Built in Fan Cooling	
OPTIONAL: Digital Monitor & Control FWD, REV, VSWR, GAIN, ALC, V & I, TEMP	Ethernet RJ-45 TCP/IP, RS422/485, USB Optional GPIB Interface	Remote Bluetooth application

Notes:

1. LCD controller option may reduce output power by up to -0.5dB

OPERATING INSTRUCTIONS & GENERAL INFORMATION

INTRODUCTION

Advanced Amplifiers is a multinational RF communication equipment and engineering service company serving both commercial and government entities and their affiliates worldwide.

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

As a unique original equipment manufacturer of power amplifiers ranging from 500KHz to 51GHz with various output power levels and noise figure ranges, we fully support custom designs and manufacturing requirements for both small and large volume levels. We bring decades of combined experience in the RF field for numerous applications including military jamming, communications, radar, EMI/EMC and various commercial projects with all designing and manufacturing of our HPA, MPA, and LNA products in-house.

Advanced Amplifiers received its ISO9001:2009 and ISO14001:2009 certification on January 2013 by ITQA which is an accredited member of JAS-ANZ.

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

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 interface software USB is with the manual.

RF & AC CABLE CONNECTION

RF Input and Output connectors are Type-N female connectors. 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 RF input to an RF 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 Appendix 1 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, 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):

Council Directive 98/37/EC on the Safety of Machinery Directive

Council Directive 2006/95/EC on Low Voltage Equipment Safety

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 modified 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

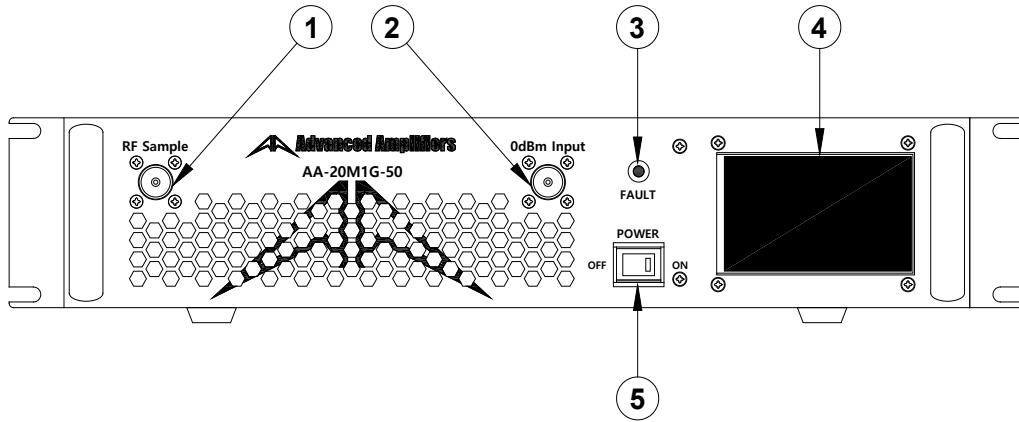
WEB: WWW.ADVANCEDAMPLIFIERS.COM
EMAIL: SALES@ADVANCEDAMPLIFIERS.COM

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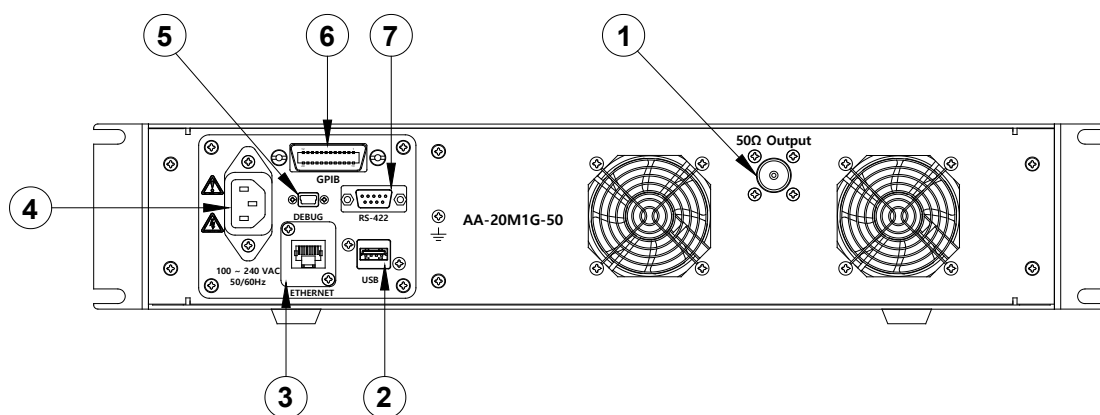
FRONT & REAR PANEL DESCRIPTIONS

FRONT PANEL VIEW



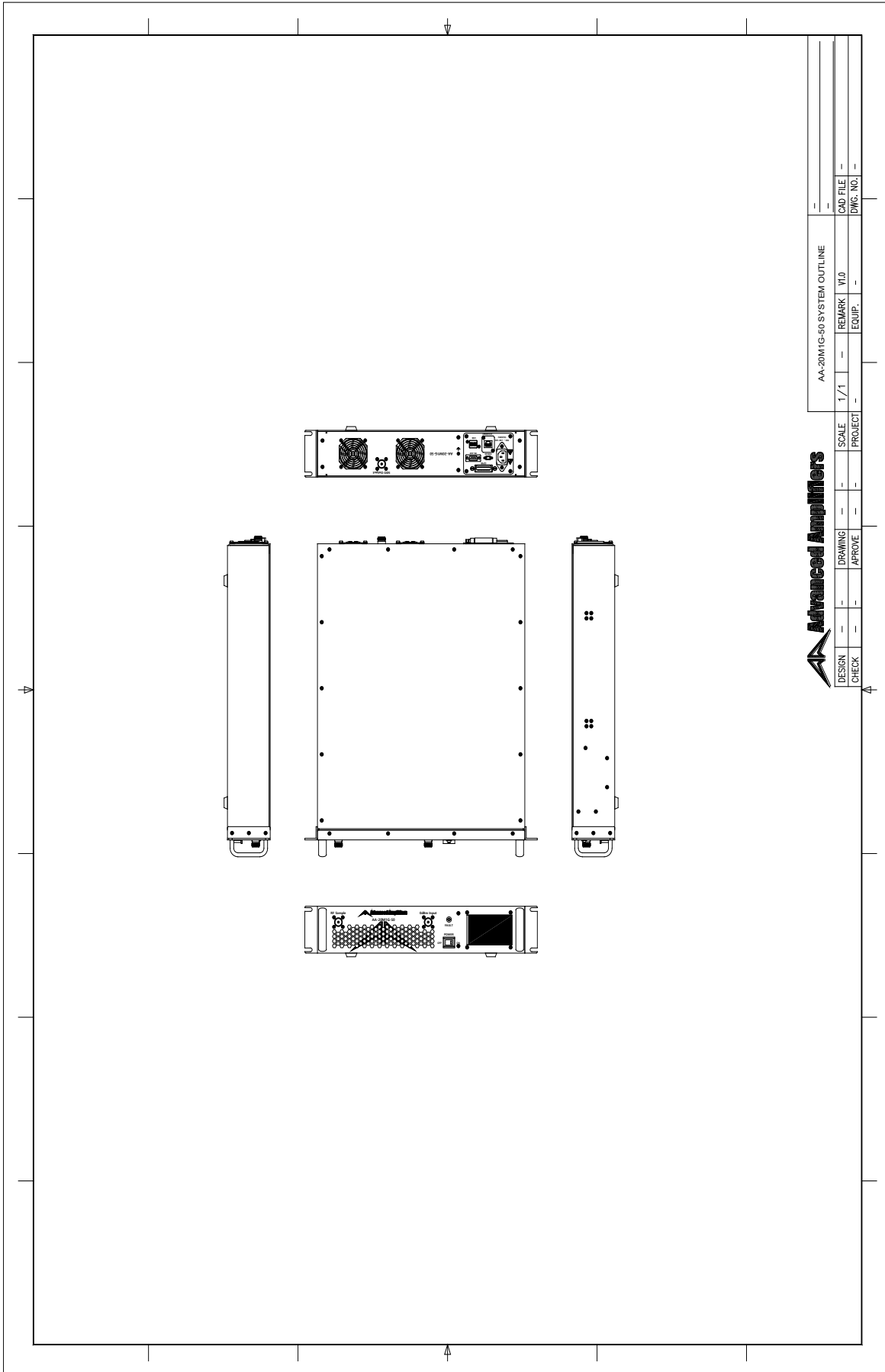
No.	Title	Function
1	RF FOWARD SAMPLE	System RF Forward Signal Sample Port, N type Female Connector.
2	RF INPUT	System RF Input Connector, N type Female Connector.
3	FAULT LED	System Fault LED: Turn ON an LED when System Fault. - Over Input, Over Temp, Over Current, Voltage Alarm, VSWR Alarm
4	LCD DISPLAY	4" Touch screen LCD Display, System Control LCD Panel.
5	POWER SWITCH	AC Power Switch.

REAR PANEL VIEW



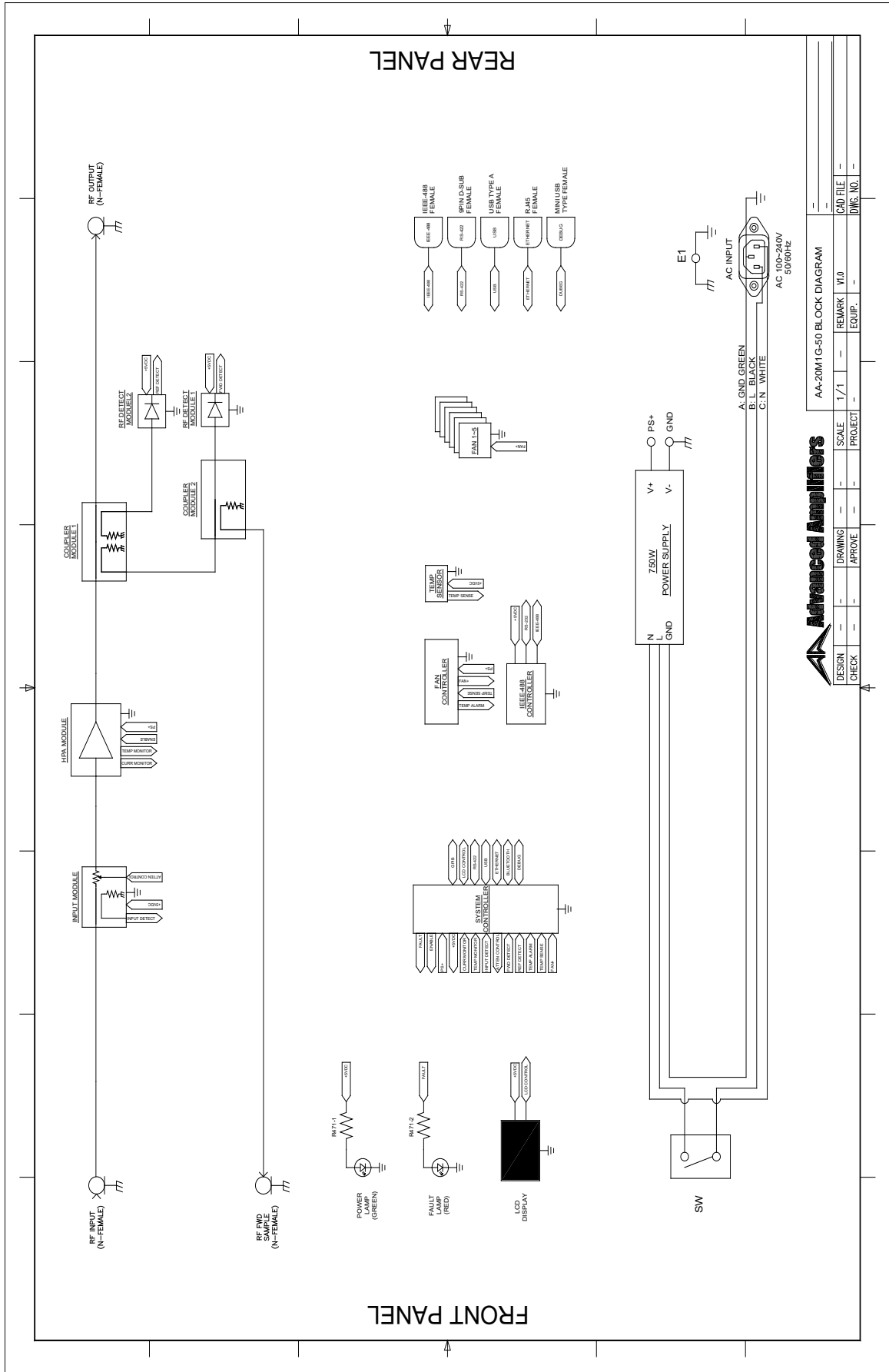
No.	Title	Function
1	RF OUTPUT	System RF Output Connector, N type Female Connector.
2	USB	USB Communication Connector, Type A Female.
3	ETHERNET	Ethernet Communication Female Connector, RJ-45.
4	AC POWER CONNECTOR	AC Power Input 100 ~ 240 VAC, 50/60Hz, IEC60320-14 Connector.
5	DEBUG	System Controller Debugging Female Connector. Port access requires factory authorization
6	GPIB	GPIB Communication Female Connector.
7	RS-422	RS-422 Communication Female 9pin D-Sub Connector. P1 Rx-, P2 Rx+, P3 Tx+, P4 Tx-, P5 GND.

SYSTEM OUTLINE VIEW



AA-20MTG-50 SYSTEM OUTLINE			
DESIGN	SCALE	1/1	REMARK
CHECK	PROJECT		EQUIP.
	DRAWING		NO. FILE
	APPROVE		DWG. NO.

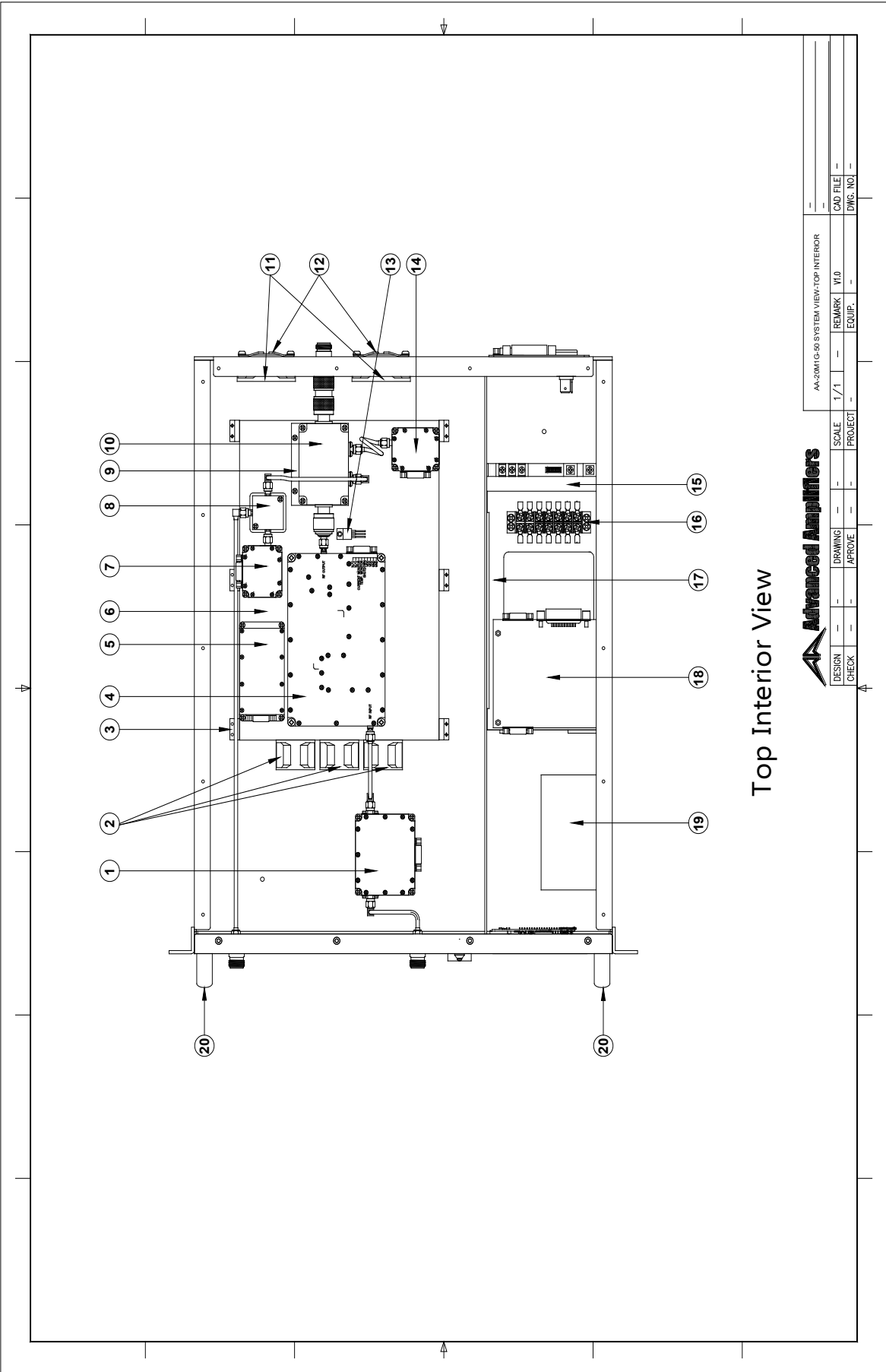
SYSTEM BLOCK DIAGRAM



Advanced Amplifiers

AA-20M1G-50 BLOCK DIAGRAM			
DESIGN CHECK	SCALE 1/1	REMARK	CAD FILE
	APPROVE	EQUIP.	DWG. NO.

SYSTEM VIEW, TOP INTERIOR



Top Interior View



AA-20M1 G-50 SYSTEM VIEW-TOP INTERIOR			
SCALE	1/1	REMARK	CAD FILE
PROJECT		EQUIP.	DWG. NO.

DESIGN	DRAWING	SCALE	REMARK	CAD FILE
CHECK	APPROVE	PROJECT	EQUIP.	DWG. NO.

SYSTEM VIEW, BOTTOM INNER

N/A

SYSTEM PARTS LIST

No.	Part Number	Qty.	Description
1		1	Input Module
2		3	40 x 28mm Cooling Fan
3		6	Support 1
4		1	HPA Module
5		1	Fan Controller
6		1	Heat Sink
7		1	RF Detect Module 1
8		1	Coupler Module 2
9		1	Support 2
10		1	Coupler Module 1
11		2	60 x 25mm Cooling Fan
12		2	60mm Cooling Fan Guard
13		1	Temp Sensor
14		1	RF Detect Module 2
15		1	Power Supply
16		1	7P Terminal Block
17		1	Support 3
18		1	GPIB Module
19		1	System Controller
20		2	2U Handle

APPENDIX 1

LOCAL CONTROLLER LCD INTERFACE

SCREEN 1

The screenshot shows the LCD interface in standby mode. At the top, there are four status indicators: CLEAR (blue), STANDBY (red), AVERAGE (blue), and ETHERNET DIS (yellow). Below these are three power-related fields: FWD POWER, RFL POWER, and VSWR, each with a green display area and a unit label (dBm). To the right of these fields are two buttons: ONLINE (black) and Watt (black). Below the power fields is a table titled 'TBL-A' with a close button 'X'. The table has two columns: 'READ VALUE' and 'READ VALUE'. The rows are: VOLTAGE 0 (0.06 V), VOLTAGE 1 (0.00 V), HEATSINK TEMP. (2.3 ° C), SYSTEM TEMP. (29.5 ° C), HPA TEMP. (94.0 ° C), CURRENT 0 (0.78 A), CURRENT 1 (0.51 A), CURRENT 2 (0.46 A), CURRENT 3 (0.54 A), and CURRENT 4 (0.38 A). To the right of the table are five buttons: TBL-A (purple), TBL-B (black), ALC (black), FAULT (black), and COMM (black). At the bottom right is an EXIT button (blue).

(Illustrates unit in standby mode, showing table A parameters, fault indicator on, and output in Watt scale)

ONLINE / STANDBY

When the HPA system starts up, HPA goes into a standby mode. By pressing ONLINE button, unit goes into online (transmission) mode. ONLINE button will now change & show STANDBY and top middle "Standby" indication will change to "ONLINE." By pressing STANDBY button, unit will stop transmitting and go into idle mode (no transmission).

<NOTE> Internal computer will scan for any possible fault conditions and attempt to clear them BEFORE the system goes ONLINE. If the system still detects faulty conditions, system will automatically go to STANDBY mode and will display a RED "FAULT" line which is highlighted left top side of display. An operator should click and check FAULT menu to review fault conditions. (No FAULT test at the top of the screen next to STANDBY).

FWD POWER

Displays current output of the system.

RFL POWER (or REV POWER)

Displays current reflected power at the output of system.

VSWR

Based on FWD/REV reading, internal computer calculates and displays current VSWR ratio.

TBL (A) (or Table (A))

Pending on system configurations, it will display some or all of below internal system parameters.

System level temperature

Modular (HPA) level temperature

Additional temperature spots

System input level voltage

Modular input level voltage

Current consumption for internal modules or elements

Current consumption for the entire system

Other custom parameters per customer requirements.

SCREEN 2

The screenshot shows the standby mode interface. At the top, there are four menu options: CLEAR, **STANDBY**, AVERAGE, and ETHERNET DIS. Below these are three rows for power and VSWR: FWD POWER, RFL POWER, and VSWR, each with a text input field and a 'dBm' label. To the right of these fields are two buttons: 'ONLINE' and 'Watt'. Below the power fields is a table titled 'TBL-B' with a close button 'X'. The table has two columns: 'READ VALUE' and 'READ VALUE'. The data in the table is as follows:

	READ VALUE		READ VALUE
		STANDBY HOUR	93H
		_ Min Sec	06M 48S
		RADIATE HOUR	0H
		_ Min Sec	02M 37S
IP		Allowed Time	
PORT			

To the right of the table are several buttons: 'TBL-A', 'TBL-B', 'ALC', 'FAULT', 'COMM', and 'EXIT'.

(Illustrates unit in standby mode, showing table B parameters, fault indicator on, and output in dBm scale)

dBm / Watt

This button enables FWD and RFL POWER readings to be in either WATT or dBm scale.

TBL (B) (or Table (B))

Pending on system configurations, it will display some or all of below internal system parameters.

STANDBY H, _Min Sec

It records total hours (H, M, S) of the system from the moment that an AC power switch is in ON position

RADIATE H, _Min Sec

It records total hours (H, M, S) of the system from the moment that ONLINE button is pushed.

IP

Displays the IP number of the amplifier.

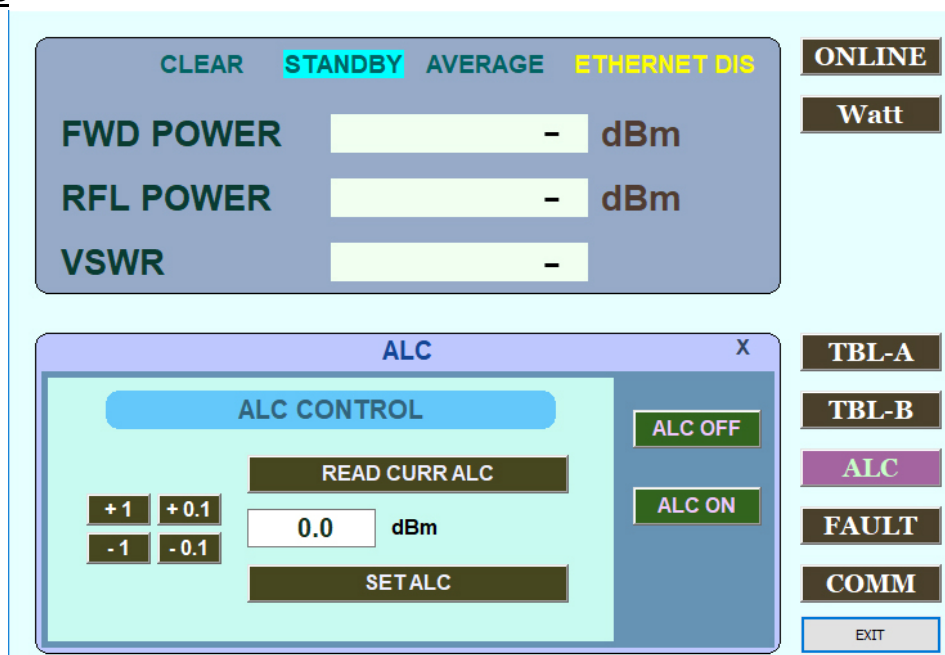
PORT

Displays the Port number.

ALLOWED TIME

Allowed time is the waiting period for TCP port communication (ethernet) between two units.

SCREEN 3



(Illustrates unit in standby mode, showing AGC setting under ALC menu, fault indicator on, and output in dBm scale)

ATTEN GAIN CONTROL (or ATTENUATING GAIN CONTROL / AGC)

This menu is active when ALC (Automatic Level Control) is OFF. This feature enables an operator to set the total gain of the system within 20 to 25dB range of maximum gain (If a total system gain is 50dB, maximum attenuation cannot exceed 50dB).

AG READ

This button recalls and display a current attenuation level.

AG SET

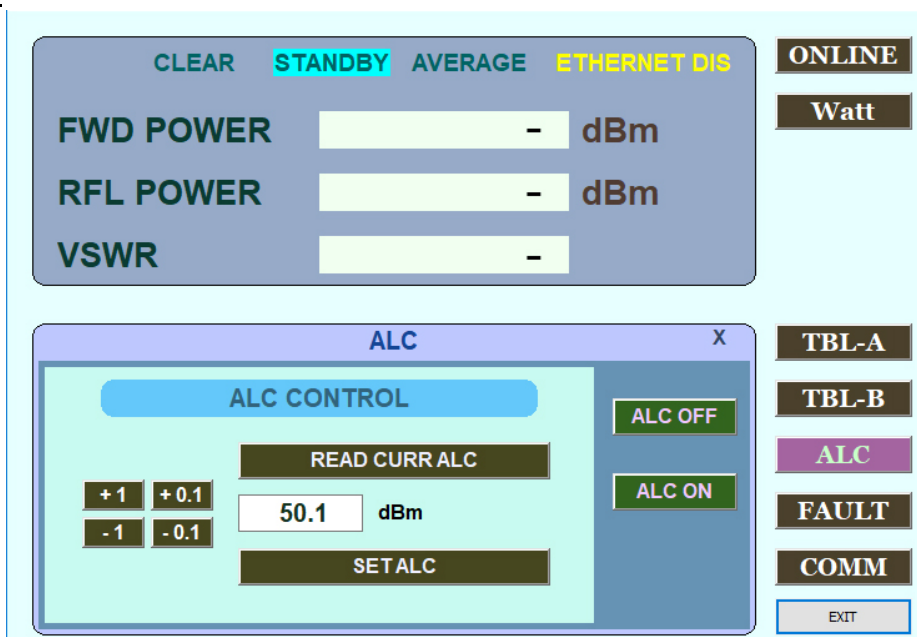
This button sets AGC value entered by an operator to the system.

<NOTE: Operator can always return to no attenuation by setting attenuation value to "0">

+1, +0.1, -1, -0.1

Operator can set attenuation value by an increment of 1dB or 0.1dB.

SCREEN 4:



(Illustrates unit in standby mode, showing ALC setting under ALC menu, fault indicator on, and output in dBm scale)

ALC CONTROL (or AUTOMATIC LEVEL CONTROL / ALC)

This menu is active when ALC feature (Automatic Level Control) is ON. This feature enables an operator to set the total output of the system within 20 to 25dB range at a given output setting (If a total system output is 50dBm, maximum ALC level cannot be configured above 50dBm).

ALC READ

This button recalls and display a current ALC level.

ALC SET

This button sets ALC value entered by an operator to the system.

<NOTE: Operator can always return to no ALC by pressing "ALC OFF" button>

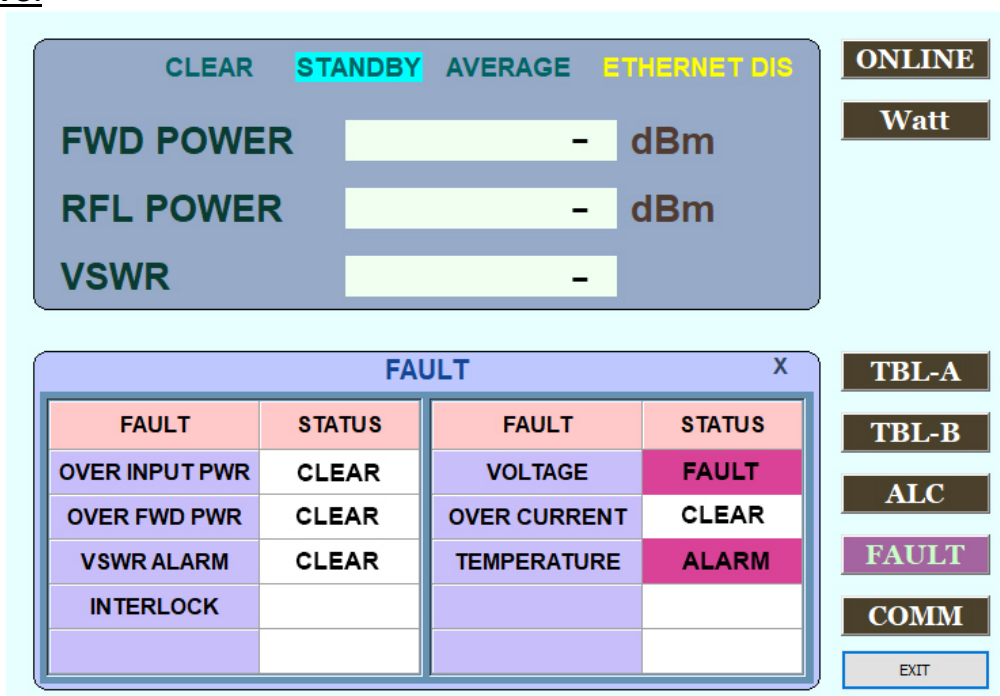
+1, +0.1, -1, -0.1

Operator can set ALC value by an increment of 1dB or 0.1dB.

ALC OFF / ALC ON

These buttons are used to turn on and off the ALC feature of the system. By default, ALC is OFF unless factory presetting is set for automatic activation for over power protection feature (If an operator overdrives the system by mistake, onboard computer may automatically activate ALC feature at preset output level to protect the system). Please do not turn off ALC feature if an over power protection feature is built in and the ALC feature activates during maximum output operations.

SCREEN 5:



(Illustrates unit in standby mode, showing status windows under FAULT menu, fault indicator on, STAT shows CLEAR, FAULT, ALARM and output in dBm scale)

FAULT Indications

Pending on system configurations, FAULT section will display some or all of below monitoring parameters.

OVER INPUT POWER

Activates when input power to the system is greater than factory preset safe operating levels.

OVER FWD POWER

Activates when system output power is exceeding factory preset safe operating levels.

VSWR ALARM

Activates when VSWR ratio exceeds factory preset safe operating levels.

INTERLOCK

N/A

VOLTAGE

Activates when irregular input voltages to the internal components are detected.

OVER CURRENT

Activates when irregular current consumption to the internal components are detected.

TEMPERATURE

Activates when irregular temperatures of internal components or system level are detected.

Other custom parameters per customer requirements

STAT (or STATUS)

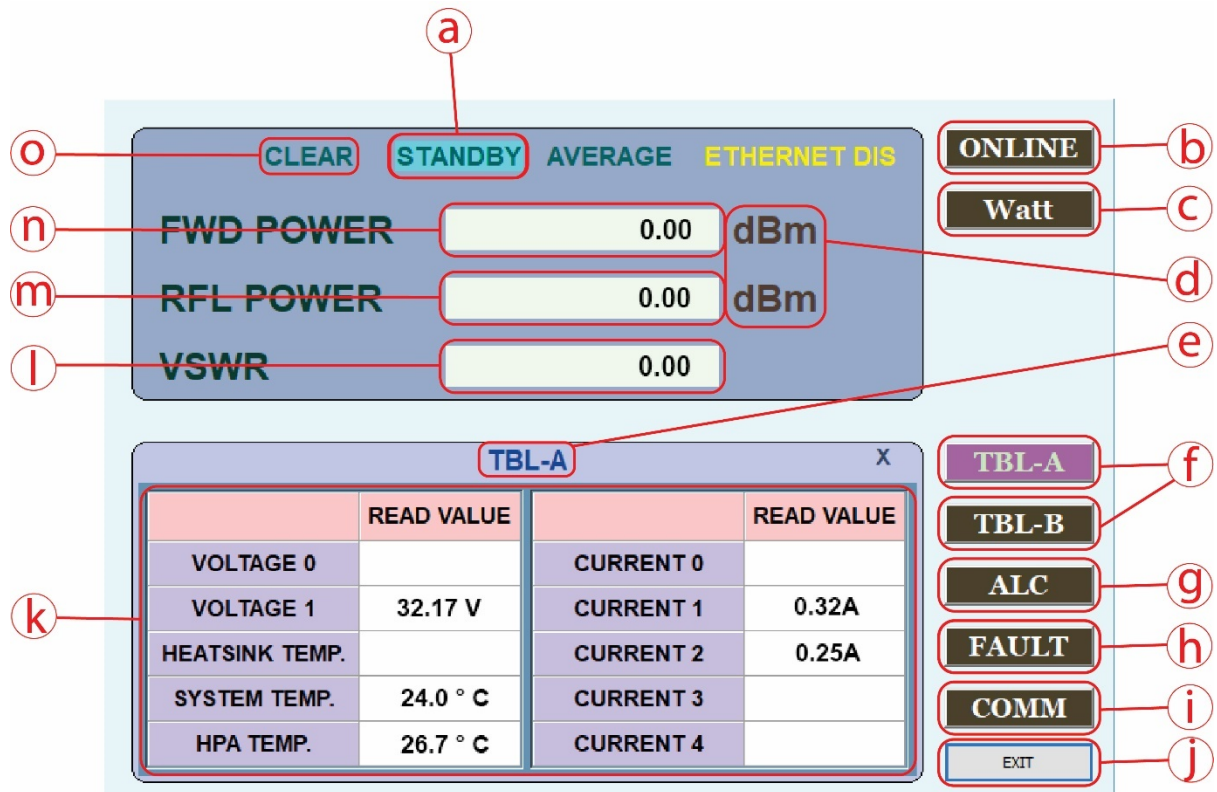
Under normal operating conditions (no fault), STAT windows will display "CLEAR."

In an event of fault conditions, STAT windows will change to either "FAULT" or "ALARM" highlighted in RED. Once fault conditions are corrected, an operator can simply press ONLINE button to clear up fault conditions in FAULT menu.

<NOTE> Internal computer will scan for any possible fault conditions and automatically attempt to clear them when ONLINE button is pressed. If the system still detects faulty conditions, system will automatically go to STANDBY mode and will display "FAULT" or "ALARM" in FAULT menu.

REMOTE CONTROLLER INTERFACE SOFTWARE

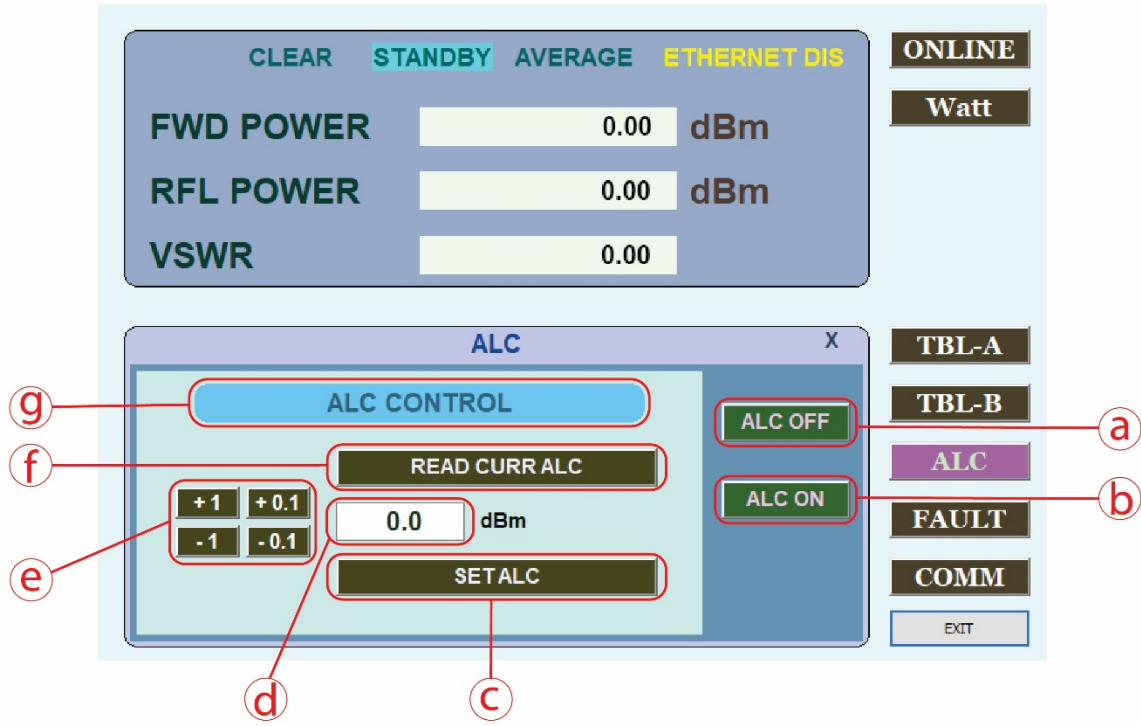
PRIMARY (MAIN) WINDOW



- a STANDBY/ONLINE: Display system STANDBY/ONLINE status.
- b ONLINE/STANDY: System ONLINE/STANDY button.
- c Watt/dBm: Watt/dBm conversion button.
- d dBm/Watt: Display dBm/Watt status.
- e TABLE/ALE/FAULT/COMM: Display menu status.
- f TABLE: TABLE menu button.
- g ALC: ALC menu button.
- h FAULT: FAULT menu button.
- i COMM: COMM menu button.
- j EXIT: Button to exit the program.
- k Display status of the TABLE menu window.
- l VSWR: Display VSWR value.
- m RFL POWER: Display RFL POWER value.
- n FWD POWER: Display FWD POWER value.
- o CLEAR/FALUT: Display CLEAR/FAULT status.

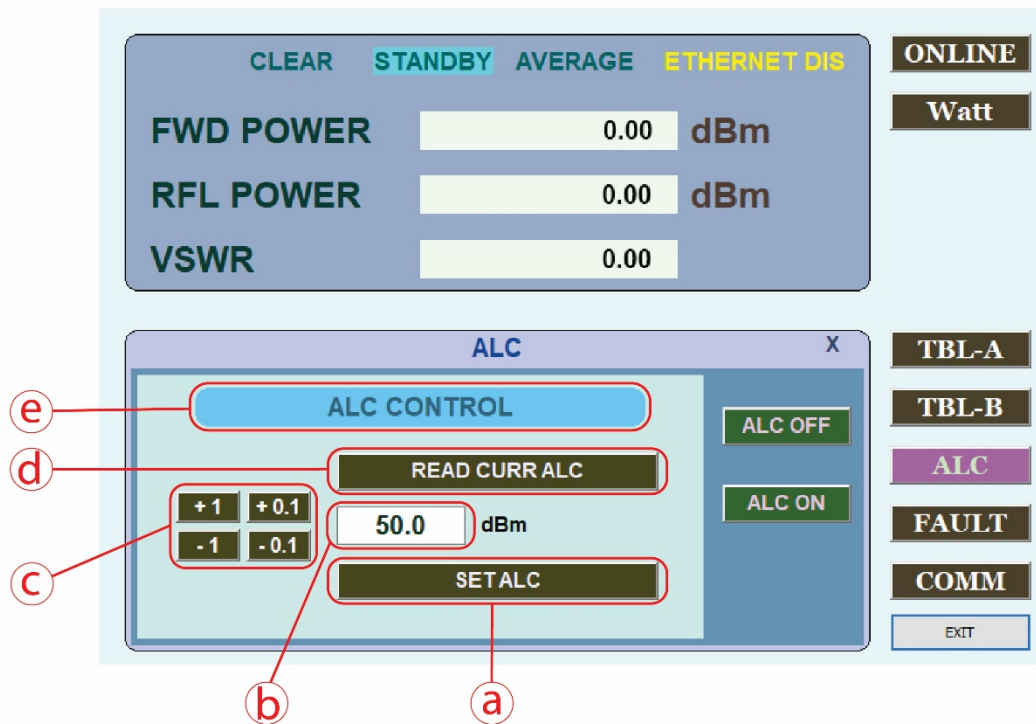
ALC ON/OFF Window

ALC OFF Window



- a ALC OFF: ALC OFF button.
- b ALC ON: ALC ON button.
- c SET ATTEN GAIN: Storing the attenuation value set to the system.
- d Attenuation value setting window.
- e Attenuation value setting button.
- f READ CURR ATTEN GAIN: Import attenuation values stored in the system.
- g ATTEN GAIN CONTROL: Display status when ALC OFF.
- h ALC Off/ALC On: Display ALC operating status.

ALC ON Window



- a SET ALC: Storing the ALC value set to the system.
- b ALC value setting window.
- c ALC value setting button.
- d READ CURR ALC: Import ALC values stored in the system.
- e ALC CONTROL: Display status when ALC ON.
- f ALC Off/ALC On: Display ALC operating status.

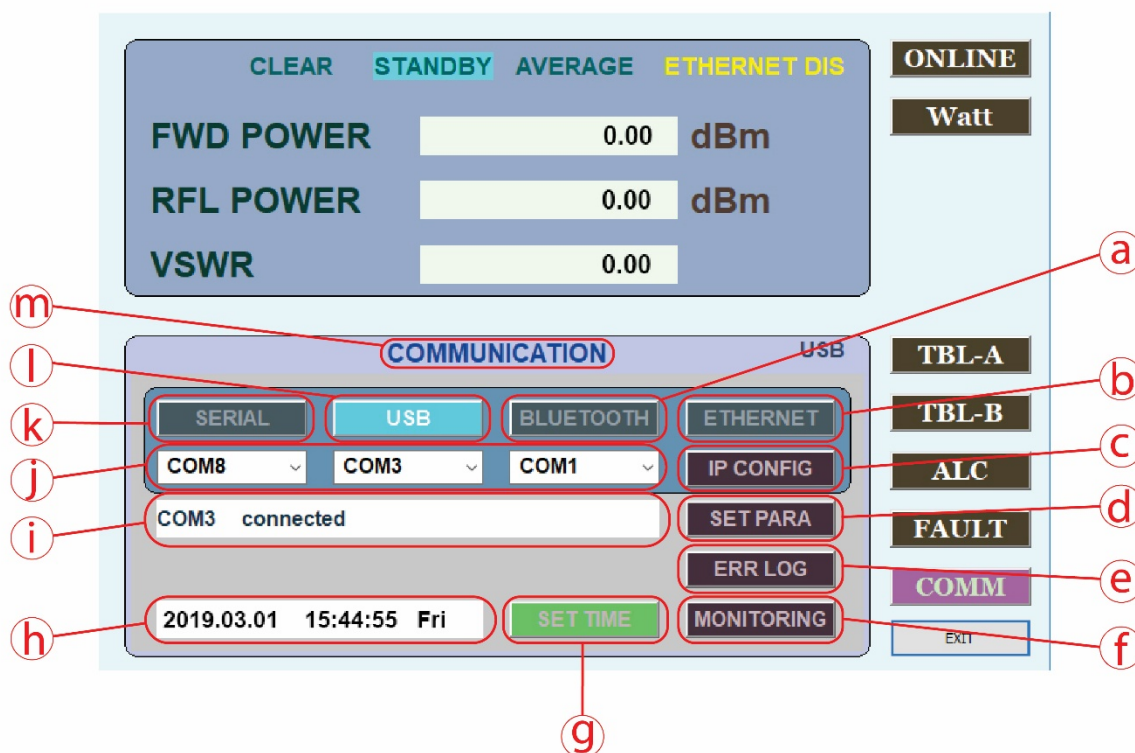
FAULT Window

The screenshot displays a control interface with a top status bar containing 'CLEAR', 'STANDBY', 'AVERAGE', and 'ETHERNET DIS' in different colors. Below this, three rows show 'FWD POWER', 'RFL POWER', and 'VSWR', each with a value of '0.00' and the unit 'dBm'. To the right of these are buttons for 'ONLINE' and 'Watt'. Below the power display is a 'FAULT' window with a title bar and a close button 'X'. This window contains a table with two columns: 'FAULT' and 'STATUS'. The table lists several fault types, all with a 'CLEAR' status. To the right of the 'FAULT' window are buttons for 'TBL-A', 'TBL-B', 'ALC', 'FAULT', and 'COMM', along with an 'EXIT' button at the bottom.

FAULT	STATUS	FAULT	STATUS
OVER INPUT PWR	CLEAR	VOLTAGE	CLEAR
OVER FWD PWR		OVER CURRENT	CLEAR
VSWR ALARM	CLEAR	TEMPERATURE	CLEAR
INTERLOCK			

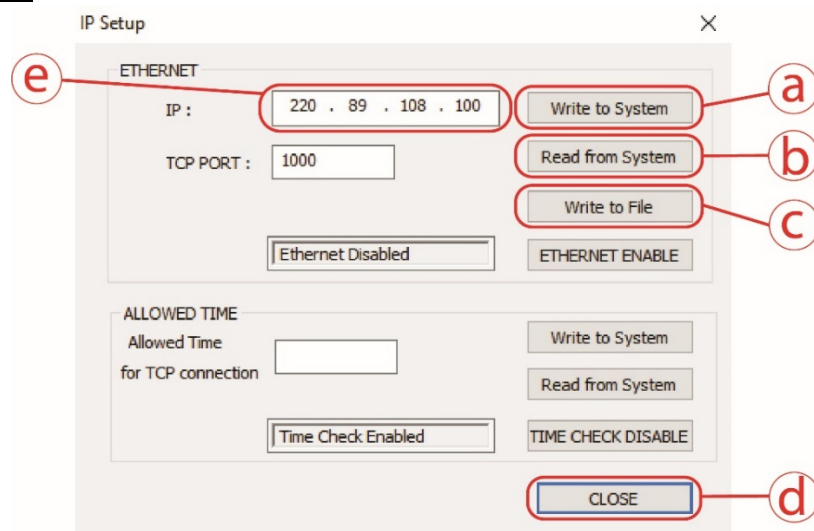
- a Display status of the FAULT menu window.
- b FAULT: Display menu status.

COMM Window



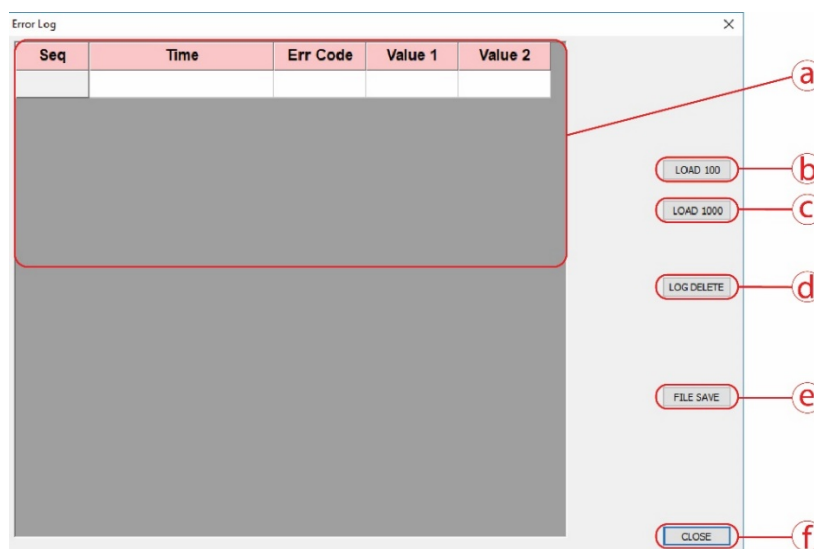
- a BLUETOOTH: Select the BLUETOOTH communication selection button.
- b ETHERNET: Select the ETHERNET communication selection button.
- c IP CONFIG: IP, MAC address settings window button.
- d SET PARA: The system default setting value button: **Do not change setting!**
- e ERR LOG: System operation and FAULT message button.
- f MONITORING: Data information window button at time the communication.
- g SET TIME: Click the button if an error occurs at the time the info window. Check the communication status between the PC before you click.
- h System time information window.
- i Communication connection information window.
- j Each communication COM Port selection window.
- k RS232: RS232 (with RS422) communication selection button.
- l USB: USB communication selection button.
- m COMMUNICATION: Display menu status.

IP ADDRESS SETUP



- a Write to System: Save the IP or MAC address settings to the system.
"1234", written when saving password window (Ⓢ).
- b Read from System: Import IP or MAC address that is stored in the system.
- c Write to File: Save the IP or MAC address settings to a text file.
- d ETHERNET ENABLE / ETHERNET DISABLE: Enable or Disable ethernet.
- e Write to System: "1234", written when saving password to window (Ⓢ).
- f Read from System: Import IP or MAC address that is stored in the system.
- g Time Check Enable / Ethernet Disable: Enables or disables the ethernet.
- h Close: Close Screen.
- i Time Check Enabled / Disabled display: Displays the Time Check Status
- j Allowed Time display
- k Ethernet Enable / Ethernet Disabled: Displays the ethernet status.
- l TCP Port display: Displays TCP Port
- m IP address setting window: The default setting IP address is "202.31.201.184"

SYSTEM LOG STATUS



- a System log status window.
- b LOAD 100: Load 100 system log state.
- c LOAD 1000: Load 1000 system log state.
- d LOG DELETE: Delete saved system log.
- e FILE SAVE: Save the system log to a text file.
- f CLOSE: Close system log status window.

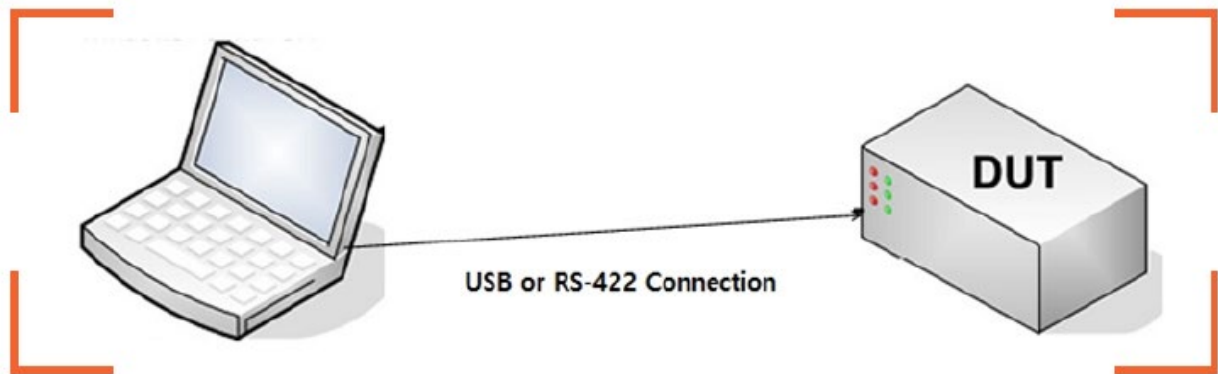
OPTIONAL - IEEE-488 COMMAND LIST

Command	Function	Units
*R!	Sets remote mode	
*L!	Sets local mode	
*Q!	Select remote mode or local mode	
*IDN?	Returns IEEE-488 Controller ID	
ID?	Returns the product model number	
SETID	Sets the product model number	
SN?	Returns the product serial number	
SETSN	Sets the product serial number	
DATE?	Returns the product date	
DATE	Sets the product date	
TIME?	Returns the product time	
TIME	Sets the product time	
TEMPerature? 0 or 1,C or F	Returns the system (0) or HPA(1) temperature °C or °F	°C / °F
OVERTemperature? 0 or 1,C or F	Returns the system (0) or HPA(1) over temperature °C or °F	°C / °F
OVERTemperature 0 or 1,set_value,C or F	Sets the system(0) or HPA(1) over temperature °C or °F	°C / °F
FORward? dBm or Watt	Returns forward power output dBm or W	dBm/Watt
FEFlected? dBm or Watt	Returns reflected power output dBm or W	dBm/Watt
VSWR?	Returns VSWR value	
VOLTage? 0 or 1	Returns voltage1(0) or voltage2(1)	V
CURRent? 0 or 1	Returns current1(0) or current2(1)	A
ATTENUation?	Returns system attenuation value	dB
ATTENUation set_value	Sets system attenuation value	dB
ALC?	Returns system ALC value and ALC ON(1) or OFF(0)	dBm
ALC 0 or 1,set_value	Sets system ALC ON(1) or OFF(0), value	dBm
OVERINput?	Returns over input alarm value	dBm
OVERINput set_value	Sets over input alarm value	dBm
ONline?	Returns status ONLINE(1) or STANDBY(0)	
ONline 0 or 1	Sets system ONLINE(1) or STANDBY(0)	
Fault?	Returns Fault message 0: No fault 1: Over Input alarm 2: Temp alarm 3: Over current 4: Voltage alarm 5: VSWR alarm	

- Command syntax example
 - System over temperature setting: Set value 75°C
OVERT 0,75,C
overt 0,75,C
Overt 0,75,C
OVERTEMperature 0,75,C
overtemperature 0,75,C
Overtemperature 0,75,C

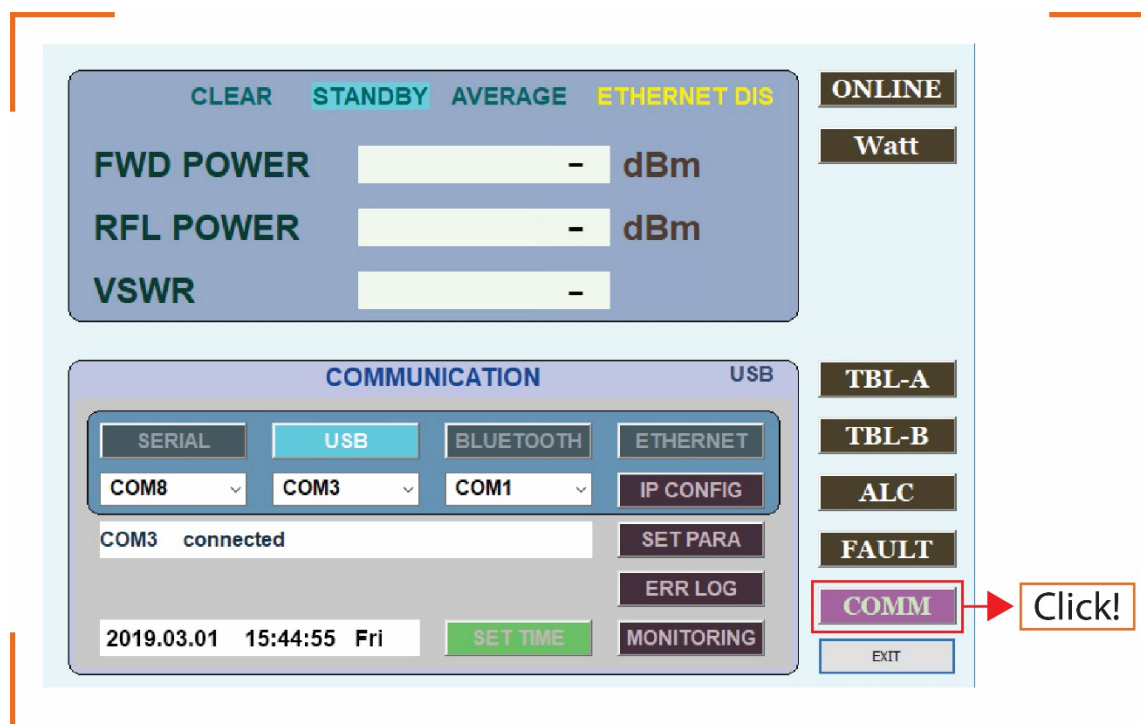
ETHERNET INITIAL PARAMETER SETUP VIA USB CONNECTION

Note: All commands are not case sensitive.



1. Computer must have “Exodus CW System Monitor” program installed. This software comes with the manual package. If you require replacement software, please contact factory.
2. Start ‘Exodus System Monitor’ program.

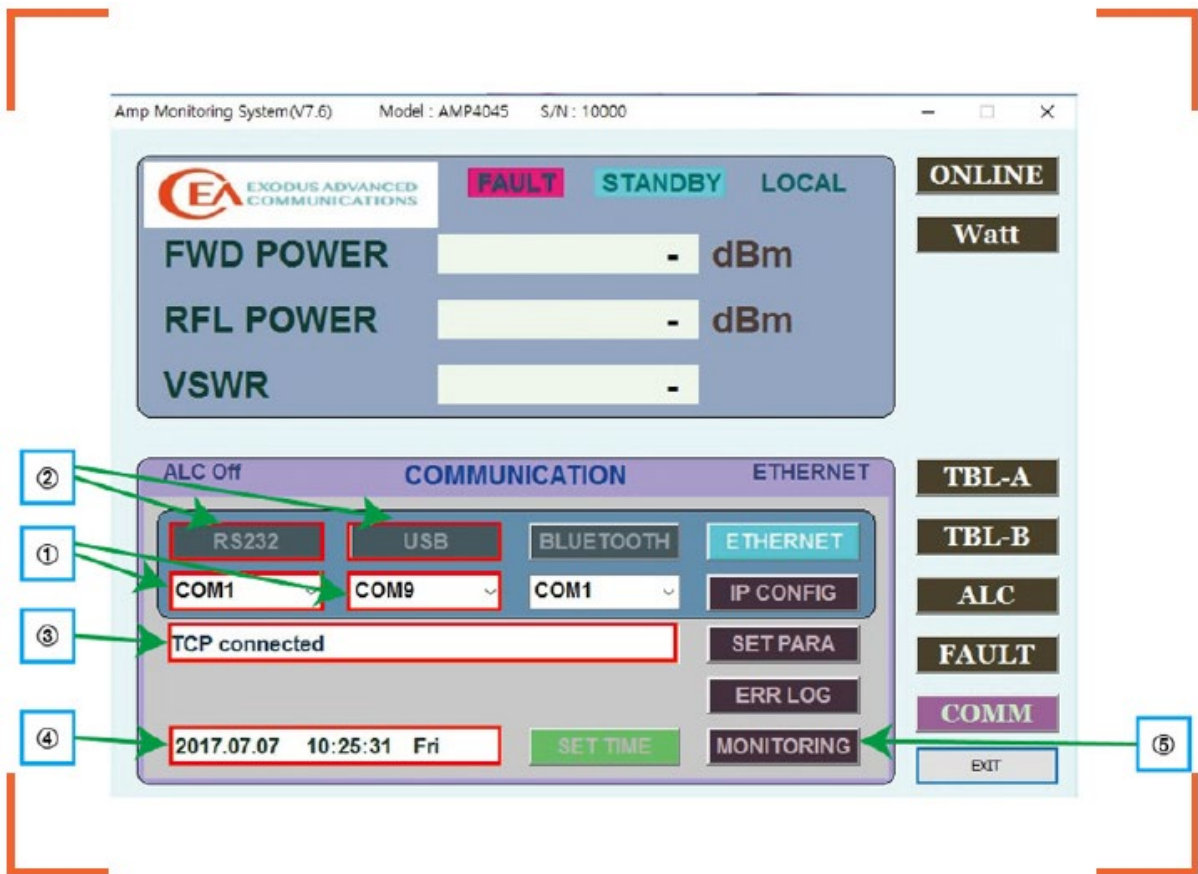
3. Click 'COMM' button.



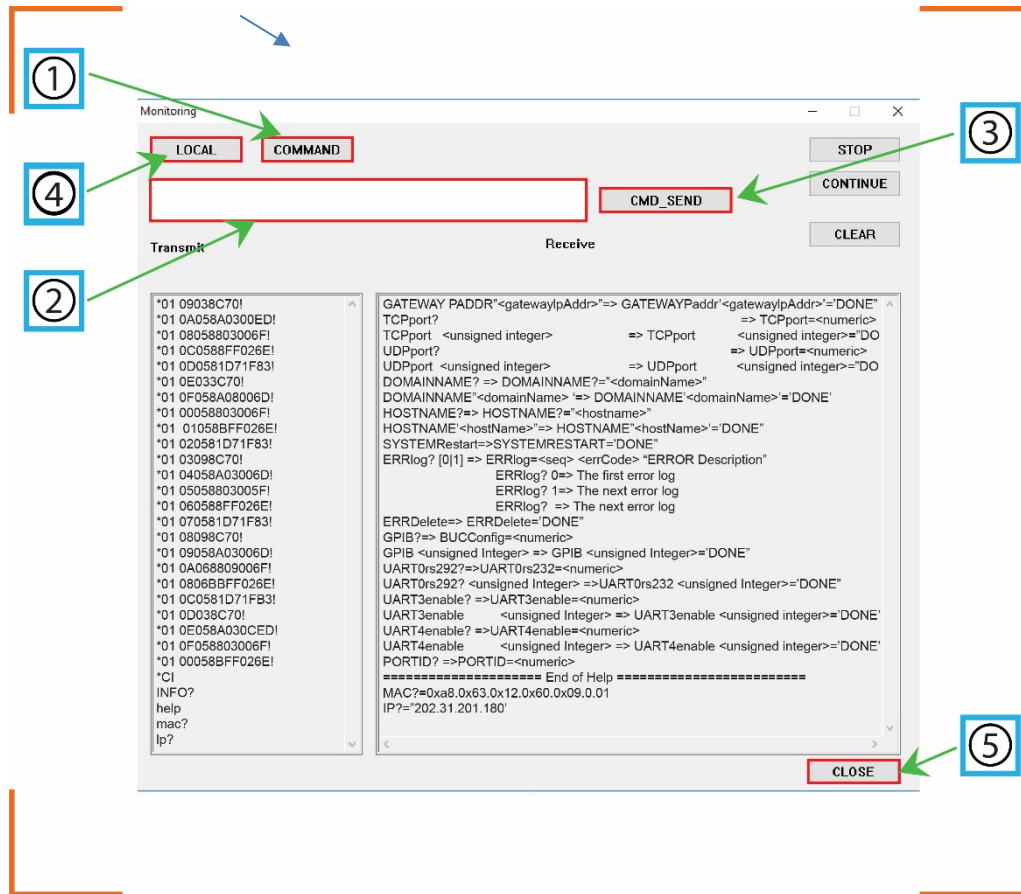
4. Under communication menu, you will see a “USB” button (labeled ②) and a scroll down window for a communication port setting (labeled ③). Change the port number to the one that is assigned by your computer for this USB. USB port setting information can be found at Device Manager/USB Controller in MS window menu.

5. Click ‘USB’ button and you will see “COM9 connected.” Please note that the port number can be changed based on actual port setting assigned by your PC. You are now ready to monitor, control, or change HPA unit. (For RS-422, same procedures apply).

6. Click “Monitoring” button (labeled ⑤) for the next step.



MONITORING WINDOW



7. Ethernet IP address setup

- Click 'COMMAND' button (labeled ①)
- In the command window (labeled ②), enter the IP address assigned to the system as shown in the example format below.
 - > Ex) IP 220.89.108.100 (IP XXX.XX.XXX.XXX)
- Click the 'COM_SEND' button (labeled ③)
 - ▷ To confirm IP address
 - * Enter "IP?" in the command window (labeled ②).
 - * Click the 'CMD_SEND' button (labeled ③)
 - * Check the 'Receive' window and it will show IP?="220.89.108.100" (IP?="XXX.XX.XXX.XXX)
- In the command window (labeled ②), enter the TCP port assigned to the system as shown in the example below.
 - > Ex) TCP 1000 (TCP XXXX)

- Click the 'COM_SEND' button (labeled ③).

▷ To confirm the entered TCP port.

* Enter "TCP?" in the command window (labeled ②).

* Click the 'CMD_SEND' button (labeled ③).

* Check the 'Receive' window and it will show TCP? 1000 (TCP? XXXX).

- In the command window (labeled ②), type "SYSTEMRESTART" and click 'COM_SEND' button (labeled ③) to restart the controller.

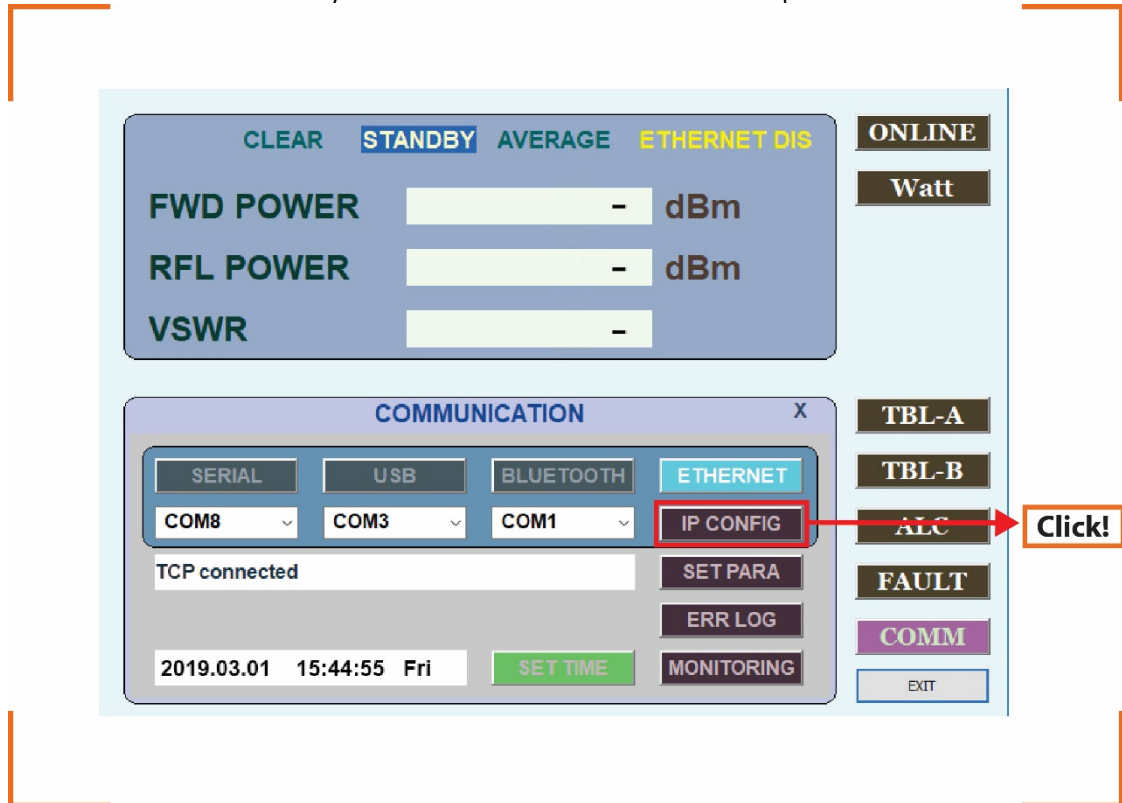
<IMPORTANT!> You must restart the controller and exit out of monitoring window properly per below steps in order for the controller to retain communication parameter changes.

- Click the 'LOCAL' button (labeled ④)

- Click the 'CLOSE' button (labeled ⑤)

8. IP address and set up verification

- Click 'IP CONFIG' button and you will see a new window called "IP Setup.



- Click a small box left to 'IP Address' (labeled ①) and click 'Read from System' button.

- You will see a yellow window box with "READ DONE. OK" which indicates successful retrieval of IP information. Click 'CLOSE' button.

- Verify IP information is same as what you inputted via Monitoring window. Current IP address shown in a box (labeled ③).

- Click the 'CLOSE' button (labeled ④).

- Ethernet setting is permanently changed.



9. Ethernet communication connection

- Connect ethernet cables to the HPA unit and press 'ETHERNET' button (Labeled ④). This will enable ethernet feature of the controller.

Under the communication window, you will see a 'TCP connected' note (Labeled ②). System is now ready for remote monitoring and control.

<IMPORTANT!> Time data window (labeled ③) should display current time when system is working properly.

