

JFW Industries, Inc.



50PA-392 MANUAL

JFW Industries, Inc.

5134 Commerce Square Drive

Indianapolis, IN 46237

Phone: (317) 887-1340

Email: sales@jfwindustries.com

Website: www.jfwindustries.com

Table of Contents

<u>Section Number/Description</u>	<u>Page</u>
1. Introduction	3
2. Initial Startup Information	4
3. Ethernet Mode	5
4. RS-232 Mode	6
5. JFW Command Set	7
6. JFW Test Program	13
7. Scripts	15
8. FAQ's	18

Additional Documents Provide with Manual:

1. Mechanical Outline Drawing
2. Block Diagram
3. Specification Sheet
4. Sample Ethernet Configuration Session

1. Introduction

The JFW model 50PA-392 is a 6x1 handover test system with 6 programmable attenuators combined into a power combiner. Refer to the block diagram for attenuator addressing and connections. The unit is controlled remotely via Ethernet or RS-232. The unit is manually controlled on the front panel using the keypad and LCD display. There is a slide switch on the back panel that allows the user to select between either Ethernet or RS-232 mode. The attenuators can be set from 0 to 127dB in 1dB increments. The attenuators are set to maximum attenuation (127dB) when the unit is powered on.

In addition to this manual a CD is also provided. The CD contains the following:

- 1) 50PA-392 Manual.PDF
- 2) 50PA-392 Specification Sheet.PDF
- 3) 50PA-392 Outline Drawing.PDF
- 4) 50PA-392 Block Diagram.PDF
- 5) JFW Test Program (50PA-392.exe)
- 6) Sample Ethernet Configuration Session.PDF

Mechanical Description

The 50PA-392 is designed in a 19" rack style enclosure. The outline drawing details all necessary package dimensions and connector layouts. The unit is AC powered via a 3-prong receptacle on the rear panel. A standard power cord is supplied with the unit. The internal power supply is a switching power supply that can handle input AC voltages of 100-240 VAC (47-63 Hz).

The 50PA-392 is also AC current protected by use of a 4 Amp "Slo-Blo" AC fuse. The fuse is field replaceable in the event of any failure to the fuse. The fuse itself is a 5x20 mm "Slo-Blo" type fuse and can be ordered through JFW or directly from Littelfuse. The Littelfuse part number is #215-004. The JFW part number is #025-018.

Manual Control

The manual control is achieved with the keypad and LCD on the front panel of the unit. To change from remote mode to manual mode, press the "1" button on the keypad. In manual mode you have three options: press "1" to go back into remote mode, press "2" to set the attenuator to a new value, or press "3" to read the current attenuation setting.

If the unit is connected remotely to a user in Ethernet mode and you switch to manual mode, the unit will close that Ethernet connection before starting manual mode. While in manual mode, no remote Ethernet connections are allowed.

If the unit is in RS-232 mode and you switch to manual mode, the unit will stop executing RS-232 commands that it receives. When you switch back from manual mode to RS-232 mode, all RS-232 commands that were received while in manual mode are deleted from the buffer.

2. Initial Startup Information

Below is some basic information that you will need to know in order to operate your JFW test system. If you have any problems getting the test system up and running, please contact JFW (317-887-1340 or sales@jfwindustries.com) and one of our engineers will assist you.

Changing from RS-232 mode to Ethernet mode

1. Turn off power to the test system.
2. Change the position of the slide switch (on back panel) from RS-232 mode to Ethernet mode.
3. Turn on power to the test system. The display on the front panel will display “Ethernet Mode”.

Ethernet Config. Port

1. The “Ethernet Config. Port” can only be used while the test system is in Ethernet mode.
2. This port will only process the Ethernet configuration commands (i.e. *SET IP*, *SET GATEWAY*).
3. This port will not process the JFW command set (i.e. *SAI 32*, *RAI*, *FAI 0 127 50M*).
4. For a step by step guide to configuring the Ethernet port, refer to the document “Sample Ethernet Configuration Session” that is provide with this manual. The “Ethernet Port” section of this manual also has Ethernet configuration information.

Ethernet Port

1. The “Ethernet Port” is only used while the test system is in Ethernet mode.
2. This port will only process the JFW command set (i.e. *SAI 32*, *RAI*, *FAI 0 127 50M*).
3. This port will not process the Ethernet configuration commands (i.e. *SET IP*, *SET GATEWAY*).
4. The “JFW Command Set” section of this manual lists all of the remote commands with examples.

RS-232 Port

1. The “RS-232” is only used while the test system is in RS-232 mode.
2. This port will only process the JFW command set (i.e. *SAI 32*, *RAI*, *FAI 0 127 50M*).
3. This port will not process the Ethernet configuration commands (i.e. *SET IP*, *SET GATEWAY*).
4. The “JFW Command Set” section of this manual lists all of the remote commands with examples.

3. Ethernet Mode

The 50PA-392 is Ethernet controlled via a standard RJ-45 Ethernet connector on the rear of the unit. The Ethernet port is a 10/100Base-T port that follows TCP/IP protocol. The remote command format and examples can be found in the “JFW Command Set” section of this manual. The command formats are the same for either Ethernet or RS-232 control. If commands are sent incorrectly to the unit, you will receive an error message. The attenuators are set to maximum attenuation (127dB) when the unit is powered on.

The slide switch on the back panel allows the user to select between either Ethernet or RS-232 control. When changing from RS-232 mode to Ethernet mode, you must turn the test system off and then back on for the change to take affect.

Ethernet Configuration Information

This unit comes programmed to the following Ethernet settings:

I.P. Address	192.168.1.250
Gateway	192.168.1.1
Netmask	255.255.255.0
Port	3001 (hard-coded into the unit and can not be changed)

An additional document “Sample Ethernet Configuration Session.PDF” comes with this manual and is located on the CD in PDF format. This sample session shows step by step example of how the Ethernet port is configured.

Open up a terminal session through your computer’s COM port using a program like HyperTerminal. You must use a Null Modem cable (JFW part #012-174) to make the physical connection from your COM port to the “Ethernet Config. Port” on the rear of the 50PA-392. The terminal session should use the following COM port settings:

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

You can verify a successful connection by typing “show” in the terminal window. You should receive an echo back from the 50PA-374. The commands listed below can then be used to change the network properties.

SHOW	Displays the Gateway setting
SHOW ETH0	Displays the IP address and Netmask settings
SET IP xxx.xxx.xxx.xxx	Changes the I.P address
SET NETMASK xxx.xxx.xxx.xxx	Changes the Netmask
SET GATEWAY xxx.xxx.xxx.xxx	Changes the Gateway
SET NAMESERVER xxx.xxx.xxx.xxx	Changes the Nameserver

4. RS-232 Mode

This unit is RS-232 controlled via a standard 9-Pin D connector on the rear of the unit. The remote command format and examples can be found in the "JFW Command Set" section of this manual. The command formats are the same for either RS-232 or Ethernet control. If commands are sent incorrectly to the unit, you will receive an error message. The attenuators are set to maximum attenuation (127dB) when the unit is powered on.

The baud rate can be set at 9600, 19200, or 38400. The current baud rate is displayed on the front panel by the LCD. To change to a different baud rate, the remote command "change baud rate" must be sent. This remote command is fully described in the "JFW Command Set" section of this manual.

The slide switch on the back panel allows the user to select between either Ethernet or RS-232 control. When changing from Ethernet mode to RS-232 mode, you must turn the test system off and then back on for the change to take affect.

RS-232 Cable

Included with the system should be one "Null Modem" cable (JFW part #012-174). This cable is used to interface with the RS-232 port. This cable is DE-9P to DE-9S and is the "Null Modem" type. The female connector will plug into the serial port on most PC's, and the male connector will connect to 50PA-392.

RS-232 Port Settings

When sending commands to the 50PA-392, your computer's RS-232 port settings must be configured as follows. The baud rate must be set at 9600, 19200, or 38400. The parity must be set to "none". The data length must be set to "8" data bits. The stop bit must be set to "1". If your RS-232 port is not configured with these settings, the 50PA-392 will not receive and execute the commands sent. It will not send back an error either, because communication was never established.

BAUD RATE	9600
PARITY	none
DATA LENGTH	8 bits
STOP BITS	1
FLOW CONTROL	none

5. JFW Command Set

The following command set is used for both Ethernet mode and RS-232 mode. The command set consists of the following commands:

- 1) Identification
- 2) Change Baud Rate
- 3) Disconnect
- 4) Set Attenuator
- 5) Read Attenuator
- 6) Fade Attenuator
- 7) Variable Handover
- 8) Pause

If you send a remote commands to the unit that is not properly formatted, then you will receive one of the following error messages.

- Error1** **Command is formatted incorrectly.**
This error occurs if characters other than IDN, CB, SA, RA, FA, DIS, PAUSE, or VHND appear in the buffer.
- Error2** **Attenuator address out of range.**
This error occurs if the attenuator address is not 1-6.
There are 6 total programmable attenuators in 50PA-392.
- Error3** **Attenuation value out of range.**
This error occurs when the attenuation value is not 0-127dB.
The attenuation range for this test system is 0-127dB x 1dB.
- Error4** **Interval time out of range.**
This error occurs when the interval time of the fade attenuator command is not 1-9999.
- Error5** **Interval time not properly formatted.**
This error occurs when a "M" or "S" does not follow the interval time for the fade attenuator, handover, or variable handover commands. The "M" formats the interval time to milliseconds. The "S" formats the interval time to seconds.

1) Identification Command

Syntax: IDN <CR>
<CR> = carriage return
<LF> = linefeed

Description: This command returns the identification information for this system and is followed by a carriage return and a line feed. It will list JFW Industries Inc, followed by the JFW model number and the firmware revision level.

Examples: IDN <CR>
Returns "JFW Industries Inc., Model 50PA-392, Firmware Rev A <CR> <LF>"

Notes: There must NOT be a space between the "I", "D", and "N".
Command is not case sensitive, but must be terminated by a carriage return.

2) Change Baud Rate Command

Syntax: CBx <CR>
x = new baud rate
<CR> = carriage return

Description: This command changes the baud rate of the unit while in RS-232 mode. The current baud rate is displayed on the front panel by the LCD.

Examples: CB9600 <CR> Changes the baud rate to 9600 baud
CB19200 <CR> Changes the baud rate to 19200 baud
CB38400 <CR> Changes the baud rate to 38400 baud

Notes: There must NOT be a space between the "CB" and the "x".
"x" must be either 9600, 19200, or 38400.
Command is not case sensitive, but must be terminated by a carriage return

3) Disconnect Command

Syntax: DIS <CR>
<CR> = carriage return

Description: This command causes the test system to close the existing Ethernet connection. This command is only used while in Ethernet mode.

Examples: DIS <CR>
When the command is received and processed, the Ethernet connection will be closed.

Notes: There must NOT be a space between the "D", "I", and "S".
Command is not case sensitive, but must be terminated by a carriage return.

4) Set Attenuator Command

Syntax: SAx y <CR>
x = attenuator number to control
y = attenuation value to set the attenuator to
<CR> = carriage return

Description: This command sets attenuator “x” to “y” attenuation in dB.

Examples: SA1 0 <CR> Sets attenuator 1 to 0dB.
SA1 8 <CR> Sets attenuator 1 to 8dB.
SA2 85 <CR> Sets attenuator 2 to 85dB.
SA2 127 <CR> Sets attenuator 2 to 127dB.
SA6 0 <CR> Sets attenuator 6 to 0dB.
SA6 8 <CR> Sets attenuator 6 to 8dB.
SA6 85 <CR> Sets attenuator 6 to 85dB.

Notes: There must be a space between the “x” and “y”.
There must NOT be a space between the “SA” and the “x”.
“x” must be between 1 and 6 (there are 6 total attenuators in this test system).
“y” must be between 0 and 127 (attenuation range is 0-127dB x 1dB).
Command is not case sensitive, but must be terminated by a carriage return.

5) Read Attenuator Command

Syntax: RAx <CR>
x = attenuator number to query
<CR> = carriage return
<LF> = linefeed

Description: This command returns the attenuation setting for attenuator “x”.

Examples: SA1 0 <CR> Sets attenuator 1 to 0dB.
RA1 <CR> Reads value of attenuator 1.
Sends back “Atten #1 = 0dB <CR> <LF>”.

SA6 98 <CR> Sets attenuator 6 to 98dB.
RA6 <CR> Reads value of attenuator 6.
Sends back “Atten #6 = 98dB <CR> <LF>”.

Notes: There must NOT be a space between the “RA” and the “x”.
“x” must be between 1 and 6 (there are 6 total attenuators in this test system).
Command is not case sensitive, but must be terminated by a carriage return.

6) Fade Attenuator Command

Milliseconds Interval Syntax: `FAx y z tM <CR>`

Seconds Interval Syntax: `FAx y z tS <CR>`

x = attenuator number to control

y = starting attenuation value

z = ending attenuation value

t = interval time

M = interval time format set to milliseconds

S = interval time format set to seconds

<CR> = carriage return

Description: This command fades the attenuator number “x” from “y” dB to “z” dB in “t” interval time. The interval time is from 1-9999. The intervals can be formatted to be in milliseconds or in seconds depending on if there is a “M” for milliseconds or “S” for seconds following the interval number. The fade command allows the attenuator to fade from a low dB value to a high dB or from a high dB value to a low dB value.

Examples:

<code>FA1 0 63 300M <CR></code>	Fade attenuator #1 from 0dB to 63dB in 1dB steps with 300 milliseconds between steps.
<code>FA1 31 127 1S <CR></code>	Fade attenuator #1 from 31dB to 127dB in 1dB steps with 1 second between steps.
<code>FA2 60 7 5S <CR></code>	Fade attenuator #2 from 60dB to 7dB in 1dB steps with 5 seconds between steps.
<code>FA2 55 60 1M <CR></code>	Fade attenuator #2 from 55dB to 60dB in 1dB steps with 1 millisecond between steps.
<code>FA6 90 2 50M <CR></code>	Fade attenuator #6 from 90dB to 2dB in 1dB steps with 50 milliseconds between steps.

Feedback: At the beginning and ending of each fade attenuator command the test system will send the user a message to provide feedback of the test system status. At the beginning, the message “Fade Started” is sent. When the command has finished executing, the message “Fade Finished” is sent.

Notes:

- There must be a space between the “x”, “y”, “z”, and “t”.
- There must NOT be a space between the “FA” and the “x”.
- Either a “M” or a “S” must follow the interval time “t”.
- There must NOT be a space between the “t” and the following “M” or “S”.
- “x” must be between 1 and 6 (there are 6 total attenuators in this test system).
- “y” must be between 0 and 127 (attenuation range is 0-127dB x 1dB).
- “z” must be between 0 and 127 (attenuation range is 0-127dB x 1dB).
- “y” and “z” can not be set to the same attenuation value.
- “t” must be between 1 and 9999.

Command is not case sensitive, but must be terminated by a carriage return.

7) Variable Handover Command

Milliseconds Interval Syntax: **VHND Av Aw Vx Vy TzM <CR>**

Seconds Interval Syntax: **VHND Av Aw Vx Vy TzS <CR>**

v = attenuator address

w = attenuator address

x = start value for attenuator “v”

y = start value for attenuator “w”

z = interval time

M = interval time format set to milliseconds

S = interval time format set to seconds

<CR> = carriage return

Description: This command fades attenuator number “v” from “x”dB to “y”dB in 1dB steps while fading attenuator “w” from “y”dB to “x”dB in 1dB steps. The interval time is from 1-9999. The intervals can be formatted to be in milliseconds or in seconds depending on if there is a “M” for milliseconds or “S” for seconds following the interval number.

Examples: **VHND A1 A6 V0 V127 T300M <CR>**

Fades attenuator #1 from 0dB to 127dB in 1dB steps.

Fades attenuator #6 from 127dB to 0dB in 1dB steps.

Interval time is 300 milliseconds between steps.

VHND A1 A6 V5 V31 T1S <CR>

Fades attenuator #1 from 5dB to 31dB in 1dB steps.

Fades attenuator #6 from 31dB to 5dB in 1dB steps.

Interval time is 1 second between steps.

Feedback: At the beginning and ending of each VHND command the test system will send the user a message to provide feedback of the test system status. At the beginning, the message “Handover Started” is sent. When the command has finished executing, the message “Handover Finished” is sent.

Notes: There must be spaces in the command as shown above in the Syntax.

Either a “M” or a “S” must follow the interval time “z”.

“v” must be between 1 and 6 (there are 6 total attenuators in this test system).

“w” must be between 1 and 6 (there are 6 total attenuators in this test system).

“x” and “y” can not be set to the same address number.

“x” must be between 0 and 127 (attenuation range is 0-127dB x 1dB).

“y” must be between 0 and 127 (attenuation range is 0-127dB x 1dB).

“z” must be between 1 and 9999.

Command is not case sensitive, but must be terminated by a carriage return.

8) Pause Command

Milliseconds Interval Syntax: PAUSExM <CR>

Seconds Interval Syntax: PAUSExS <CR>

x = duration of time to pause

M = interval time format set to milliseconds

S = interval time format set to seconds

<CR> = carriage return

Description: This command pauses the test system for “x” duration of time. The time duration can be set from 1-9999. The time duration can be formatted to be in milliseconds or in seconds depending on if there is a “M” for milliseconds or “S” for seconds. The pause command is useful when sending scripts to the test system and you want a timed pause between other remote commands.

Examples: PAUSE100M <CR> Test system pauses for 100 milliseconds.

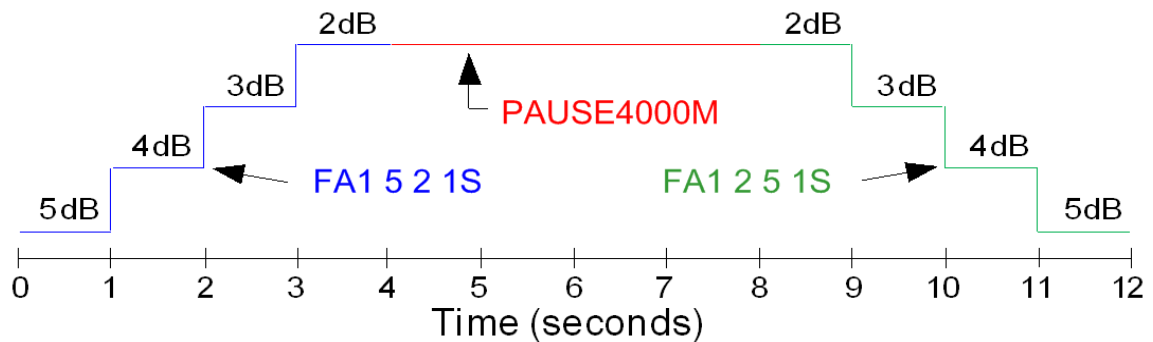
PAUSE15S <CR> Test system pauses for 15 seconds.

Notes: “x” must be between 1 and 9999.

Command is not case sensitive, but must be terminated by a carriage return.

Feedback: At the beginning and ending of each PAUSE command the test system will send the user a message to provide feedback of the test system status. At the beginning, the message “Pause Started” is sent. When the command has finished executing, the message “Pause Finished” is sent.

Script Example: FA1 5 2 1S <CR> Fades attenuator #1 from 5dB to 2dB at 1 second/step.
PAUSE4000M <CR> Test system pauses for 4 seconds (4000 milliseconds).
FA1 2 5 1S <CR> Fades attenuator #1 from 2dB back to 5dB at 1 second/step.



Script Notes: Each command in a script is executed sequentially.
You can send hundreds of commands in a single script.
For additional script information refer to the “Scripts” section of this manual.

6. JFW Test Program

No installation program needs to be run in order to use the JFW test program. Just copy the executable file located on the CD onto your computer. While using the program, you will see the commands you send displayed in the “Data Sent” window and any response from the test system in the “Data Received” window. In addition to the 50PA-392's remote command set, JFW has provided the following functionality to the GUI:

Typed Command

Allows you to send any ASCII message you want to the test system. Just type your message in the text box and click on the Send Message button. Your Message is displayed in the “Data Sent” window.

Keypress Attenuator

Allows you to easily step attenuation up or down for a specific attenuator number.

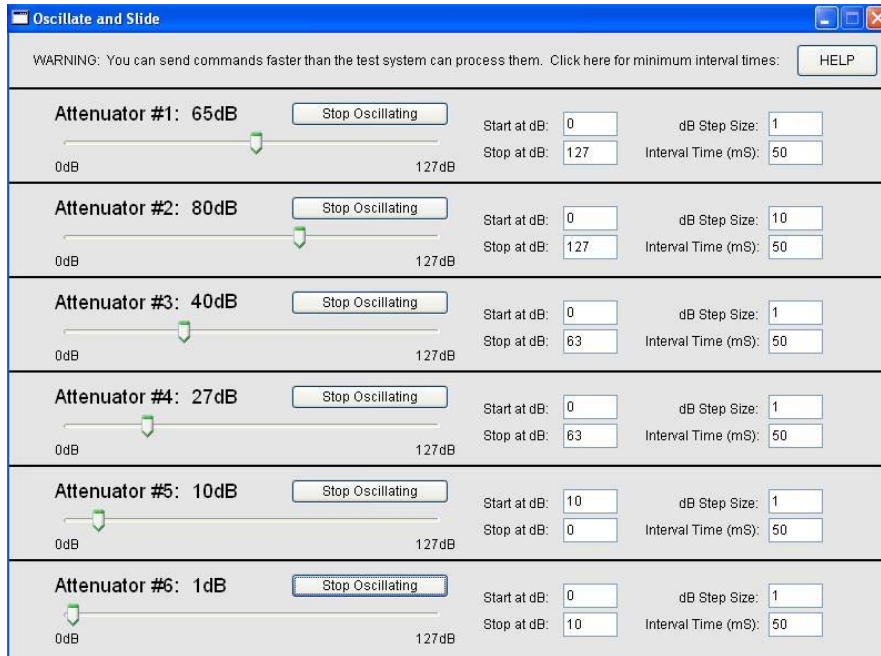
The screenshot shows the JFW 50PA-392 Test Program GUI. The window title is "JFW Industries, Inc. 50PA-392 Test Program (Rev 0)". The interface is teal with a blue header. It features several control panels:

- RS-232 Setup:** Includes a "Close RS-232 Port" button, "Com Port" set to COM3, and "Baud Rate" set to 9600.
- Ethernet Setup:** Includes a "Connect Ethernet" button, "I.P. Address" set to 192.168.1.250, and "Port Number" set to 3001.
- Remote Commands:** Includes buttons for "Set Attenuator", "Read Attenuator", "Fade Attenuator", and "Variable Handover". It also has input fields for "Atten #" and "dB".
- Send Typed Command:** Includes a text input field and "Send Message" and "Clear Message" buttons.
- Keypress Attenuator:** Includes a "Keypress" button, "Atten #" set to 1, and "Start at dB" set to 0.
- Oscillate and Slide:** Includes buttons for "Oscillate and Slide" and "Synchronous Oscillate and Slide".

At the bottom, there are two text areas: "Data Sent" and "Data Received", each with a "Clear Text" button.

Oscillate and Slide

Allows you to change the attenuation settings using a slider bar. The slider bar can be moved with the mouse pointer or with the left and right arrow keys. This window also allows you to oscillate the attenuation between start and stop values. The attenuators can be set to different start values, stop values, and interval times.



Synchronous Oscillate and Slide

This window is just like the Oscillate and Slide window, except that all attenuators use the same interval time. This makes it easy to perform handover testing.



7. Scripts

This section is meant to answer some basic questions about using scripts with JFW test systems. Below are some frequency asked questions followed by a step by step script example on the following pages.

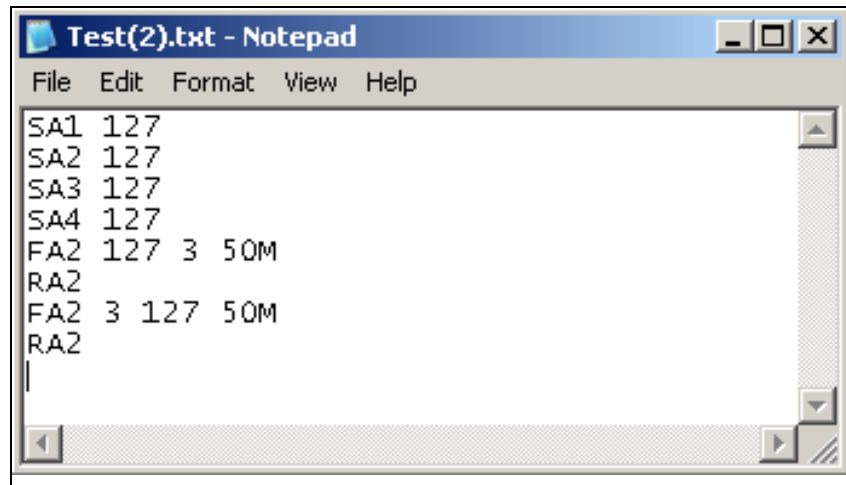
Script FAQ's

- 1) **What is a script?**
A script is a text file (.txt) that lists multiple remote commands. Notepad for Windows can be used to generate the text files. Terminal programs such as Hyperterminal for Windows can be used to send the text file to a test system via Ethernet or RS-232.
- 2) **Why would I want to use scripts?**
You have a test that will be run repeatedly and it uses the same remote commands each time. Using a script saves you from having to type in the same set of remote commands over and over.
- 3) **How does the JFW test system execute a script?**
All remote commands listed in a script are executed sequentially. When you send the script the terminal program lists all of the remote commands sent in the terminal window. The JFW test system stores all of the commands in a receive buffer. It reads the first command and executes the command. Only when the first command is fully executed does the test system read in the second command. Each command is read in and executed sequentially until all of the commands in the receive buffer are gone.
- 4) **How many remote commands can be in one script?**
JFW has tested scripts on Ethernet test systems and RS-232 test systems that contain as many as 1000 remote commands in a single script.
- 5) **What happens if I send a second script before the first script is completely processed?**
The commands contained in the second script will be seamlessly processed after all of the commands in the first script have been executed.
- 6) **How do I terminate each remote command in my text file with a carriage return?**
When you use the “enter” key to go to the next line it will include a carriage return and line feed in the text file. This means that each line of the text file should contain only one remote command.
- 7) **Why does the last remote command in my script does not execute?**
The last command is not properly terminated with a carriage return. You must press the “enter” key at the end of the last remote command to add a carriage return in the text file.

Script Example

Step 1: Generate the Text File

For this example Notepad for Windows was used to generate the below text file. Every remote command is listed on a single line so that there is a carriage return terminating each remote command. When writing your script, don't use the *ENTER* key on the number pad. The *ENTER* key on the number pad does not generate a carriage return that is needed to terminate each remote command. Instead use the *ENTER* key that is located with the letter keys.

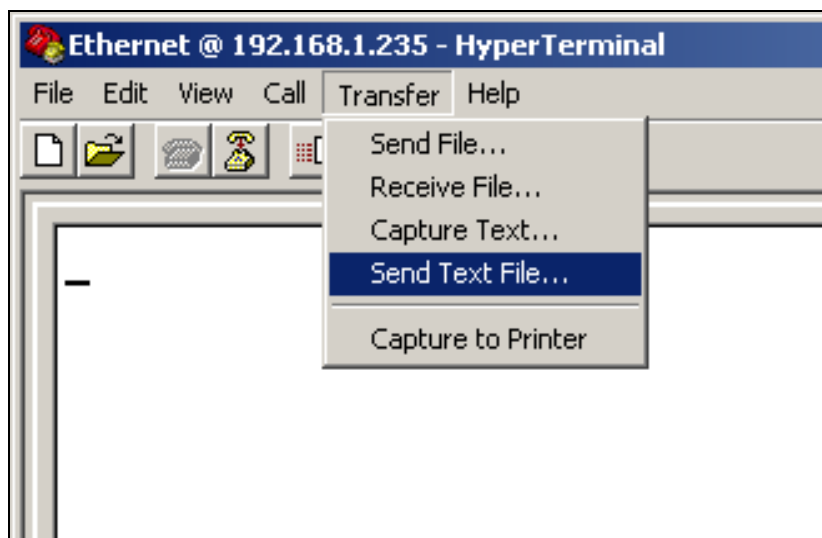


Step 2: Connect to the Test System

Hyperterminal for Windows was used to establish an Ethernet connection with the test system.

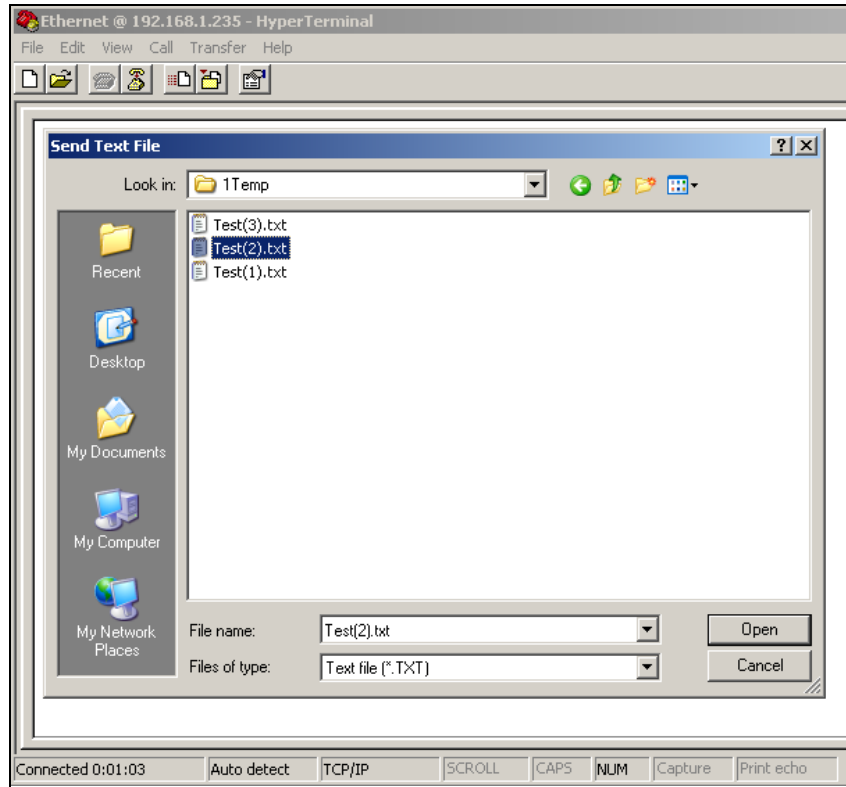
Step 3: Send the Text File

Select "Send Text File" from the Transfer tab.



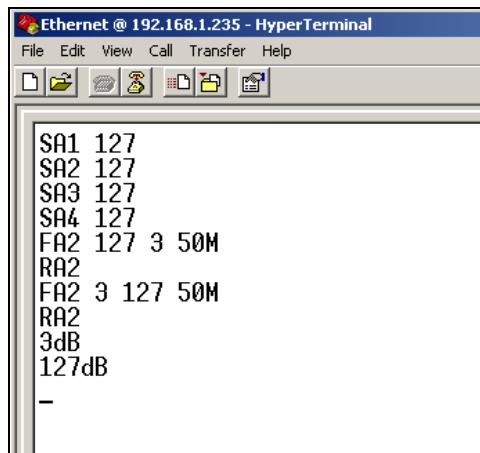
Step 4: Select the Text File

Hyperterminal prompts you to select your text file.



Step 5: Waiting for the Remote Commands to be Processed

The remote commands in the text file are sent and listed in the terminal window. Each command is executed sequentially until there are no more remote commands in the receive buffer. The “3dB” text does not show up until the first read attenuator command (RA2) is complete. The “127dB” text does not show up until the second read attenuator command (RA2) is complete.



8. FAQ's

If you are reading this page because you are having problems with a JFW test system, please contact JFW at **317-887-1340** or **sales@jfwindustries.com**. One of our engineers can help you troubleshoot the unit and get you back on track.

Why is the unit not responding to my Ethernet port configuration commands?

The Ethernet is configured using the "Ethernet Config. Port" on the back panel while in Ethernet mode. The "Ethernet Config. Port" is a RS-232 port. You must use a Null Modem type RS-232 cable to connect to it. You must use the following RS-232 port settings with this port: baud rate (9600), data bits (8), parity (none), stop bits (1), flow control (none).

Why won't the unit turn on?

Check the fuse on the back panel. This fuse is rated at 4 Amps/250 Volts. The fuse should be replaced with Littlefuse #215-004 or JFW part #025-018.

How do I find out the revision level of my firmware?

Right after the unit is powered on, the firmware revision level is displayed on the LCD. The firmware revision level is also included with the information sent back from an "identification" remote command.

I just switched from Ethernet mode to RS-232 mode using the switch on the back panel, but I am still in Ethernet mode. Why did the mode not change?

You must turn the unit off and then back on for the change to take affect.

Why won't the unit respond to my Ethernet commands?

Verify the following settings: IP address, Gateway, Netmask, and Port Number. Remember that the Port Number is hard-coded to 3001 and can not be changed. Check your command format in the "JFW Command Set" section of this manual. All remote commands must be terminated with carriage returns.

Why won't the unit respond to my RS-232 commands?

Verify the following RS-232 settings: baud rate, parity (none), data bits (8), and stop bits (1). The current baud rate is displayed on the front panel by the LCD. Check your command format in the "JFW Command Set" section of this manual. All remote commands must be terminated with carriage returns.

Why don't I get a response from the unit when I send the remote command "RA1"?

All remote commands must be terminated with carriage returns. Attach a carriage return to your command string right after the "1".

Why did the script I sent to the test system not execute?

When writing your script, don't use the *ENTER* key on the number pad. The *ENTER* key on the number pad does not generate a carriage return that is needed to terminate each remote command. Instead use the *ENTER* key that is located with the letter keys.