

**JFW Industries, Inc.**



# ***50SA-213 MANUAL***

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## **Additional Documents Provide with Manual:**

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

# 1. Introduction

The JFW model 50SA-213 consists of sixteen electro-mechanical 1P2T failsafe RF switches. 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 1P2T switches are set to their failsafe port at startup.

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

- 1) 50SA-213 Manual.PDF
- 2) 50SA-213 Specification Sheet.PDF
- 3) 50SA-213 Outline Drawing.PDF
- 4) JFW Test Program (50SA-213.exe)
- 5) Sample Ethernet Configuration Session.PDF

## Mechanical Description

The 50SA-213 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 50SA-213 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 change the switch setting, or press "3" to read the current switch settings.

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. *SSI 2*, *RSI*, *IDN*).
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. *SSI 2*, *RSI*, *IDN*).
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. *SSI 2*, *RSI*, *IDN*).
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 50SA-213 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 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	<b>192.168.1.250</b>
Gateway	<b>192.168.1.1</b>
Netmask	<b>255.255.255.0</b>
Port	<b>3001</b> (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 50SA-213. 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 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 50SA-213.

### RS-232 Port Settings

When sending commands to the 50SA-213, 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 50SA-213 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 Switch
- 5) Read Switch

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

- Error1**      **Command is formatted incorrectly.**  
This error occurs if characters other than IDN, CB, DIS, SS, or RS appear in the buffer.
- Error2**      **Switch address out of range.**  
There are 16 of the 1P2T switches. Switch address should be 1-16.
- Error3**      **Switch Port setting not valid.**  
The failsafe 1P2T switches only have two settings: Normally Open or Normally Closed. The port setting sent remotely should be “NO” for the normally open or “NC”for the normally closed.

### 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 50SA-213, 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 Switch Command**

Syntax:       SSx y <CR>  
              x = switch number  
              y = port setting  
              <CR> = carriage return

Description:   This command sets switch “x” to port “y”.

Examples:     SS1 NO <CR>       Sets switch #1 to Normally Open port.  
              SA1 NC <CR>       Sets switch #1 to Normally Closed port.  
              SA2 NO <CR>       Sets switch #2 to Normally Open port.  
              SA2 NC <CR>       Sets switch #2 to Normally Closed port.

Notes:        There must be a space between the “x” and “y”.  
              There must NOT be a space between the “SS” and the “x”.  
              “x” must be between 1 and 16 (there are 16 total switches in this test system).  
              “y” must be “NO” for normally open or “NC” for normally closed.  
              Command is not case sensitive, but must be terminated by a carriage return.

#### **5) Read Switch Command**

Syntax:       RSx <CR>  
              x = switch number  
              <CR> = carriage return  
              <LF> = linefeed

Description:   This command returns the port setting for switch “x”.

Examples:     SS1 NO <CR>       Sets switch #1 to Normally Open port.  
              RS1 <CR>       Sends back “Switch #1 = NO <CR> <LF>”.  
  
              SS2 NC <CR>       Sets switch #2 to Normally Closed port.  
              RS2 <CR>       Sends back “Switch #2 = NC <CR> <LF>”.

Notes:        There must NOT be a space between the “RS” and the “x”.  
              “x” must be between 1 and 16 (there are 16 total switches in this test system).  
              Command is not case sensitive, but must be terminated by a carriage return.

## 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 50SA-213'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.

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### 50SA-213 Test Program (Rev A)

**RS-232 Setup**

Open RS-232 Port

Com Port:

Baud Rate:

**Ethernet Setup**

Disconnect Ethernet

I.P. Address:

Port Number:

**Remote Commands**

Set Switch Switch #:

Port:

Read Switch Switch #:

Change Baud Rate

**Typed Commands**

Send Message Clear Message

**Data Sent** Clear Text

**Data Received** Clear Text

JFW Industries Inc., Model 50SA-213, Firmware Rev A

## 7. 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 "RS1"?**

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.