7. To write to a block of memory locations, use the commands in the block section of the window. Enter the starting memory location in the "From" window. Enter number of memory locations in the "Length" window. The ending memory location will be automatically calculated in the "To:" window. Click the box to the left of the "Write" text and enter the data in the window below the "Write" command.

8. To write protect the entire block, click the box to the left of the "Write Protect" text.

9. To complete the block write command, select the "Perform" button.

10. To return to the List ID mode, click the "OK" button.

I *Please refer to the "RF Exposure" section page 41 for safety precautions.*

Loading Your Application

After you install the Scanner and tags according to the instructions in this chapter, you can load your application and begin writing information to read/write tags or reading information from all tags. Your application will determine the amount of interaction you have with the scanner and tags.

I *If you will be developing applications designed to interface to your system, refer to Software Development Diskette for programming information.*

Chapter 3

RF Communications

In general, devices that communicate using radio frequency, such as your system , can be sensitive to signal interference and signal attenuation. This chapter provides tips for optimizing radio-frequency (RF) communications with your InstaScan and Sense-9000 series tags.

Topics in this chapter include:

Signal Interference

Signal interference is RF signals that interfere with the information being exchanged between the tag and the scanner. Signal interference can severely diminish the scanner's ability to read information from the tags. The GREEN LED on the scanner flickers constantly if it detects signal interference.

The source of the interfering signals may be:

• An RF system, such as an RF local-area network (LAN) or another Interactive Identification system, located close to your system.

• Security gates, garage doors, or similar devices that emit RF signals.

• Appliances such as microwave ovens.

The effects of these noise sources are localized and can be eliminated by relocating the scanner and its antenna.

Your system's communication capabilities are significantly reduced when the noise level perceived by the system exceeds the strength of signals received.

Signal Attenuation Reflections

Signal attenuation is the loss of signal strength that occurs naturally over distances, but which can also be caused by RF barriers in the signal path.

Examples of such barriers include:

- **Enclosed locations that have concrete walls, floors, and ceilings.**
- **Metal surfaces surrounding the antenna or tag.**
- **Water or other fluids surrounding the antenna or tag.**

Almost every object (furniture and partitions) in the path of a signal causes some degree of attenuation. The effects can be minimized by careful antenna placement.

The reflection from metal or metallic surfaces behind the tag can also affect signal attenuation. In some cases, this may increase the read distance slightly, while inducing intermittent "dead" spots within the read field that permit little or no communication between the scanner and tag.

Optimizing Performance

While it is not possible to predict how your system will perform in any given environment, observing the following guidelines will help optimize performance in your environments and applications:

Carefully plan the placement of the scanner antennas. The antennas can be extended approximately ten feet from the scanner, depending on cable length purchased for the application. If your application requires longer distances, move the scanner to an appropriate location.

I *The scanner antennas should never be disassembled, altered, or modified except by an authorized technician. Any unauthorized antenna modifications can void your warranty.*

Consider the environment's RF characteristics, including construction materials, office plan (closed or open), and the presence of windows and ducting. The RF field pattern, and the reading distance, may be influenced by nearby metal objects, such as appliances, equipment, metal wall framing, and wire coat hangers.

Ensure that objects containing tags are no more than 84 inches from the antenna and remain in the scan field for at least 3 milliseconds.

To avoid mutual interference when installing more than one tag in the same object, allow a sufficient distance between the tags. The maximum interference occurs when tags within the same object are within two inches of each other and nearly equidistant from a scanner antenna.

Never apply chemicals to the tags. Certain chemicals, such as alcohol, may have little or no effect at room temperature, but may become corrosive at higher temperatures.

Chapter 4

Troubleshooting

This chapter provides troubleshooting information you can use in the unlikely event you have a problem with your system. Customer Service information and merchandise return instructions are included in this chapter.

Solving Problems

The following table identifies scanner and tag problems and provides suggestions for resolving the problem.

Table 2. Problem Solving

Problem	Probable Cause	Solution
The Power ON LED does not light when you turn on the scanner	The AC outlet may not be working.	Plug another electrical appliance, such as a lamp, into the outlet and turn it on. If the appliance does not work, plug the scanner into a different outlet.
	The AC outlet may be controlled by a wall switch.	Set the wall switch to provide AC power to the outlet, or use an outlet to be controlled by a switch.

Problem	Probable Cause	Solution
The green LED does not light hen you configure the scanner.	You may have a faulty tag.	Try another tag.
	The scanner may be faulty.	Use the Sense Test utilities to verify scanner operation (see "Configuring the Scanner" on page 15)
	The antenna cable may be faulty.	Contact Sense Customer Service (see page 30).
You receive an error message when configuring the scanner.	The scanner may not be turned on.	Verify that the Power ON LED is lit.
	The scanner's serial port connection to your computer may not be secure.	Verify the scanner-to-serial port connection. If you are using a serial port adapter, make sure the adapter connections are secure.
	The Sense Test programs are accesing a different Com Port than the one connected.	Switch the serial cable to Com Port 1 or set the Com Port being used.

Problem	Probable Cause	Solution
The Power ON LED does not light when you turn on the scanner	The AC outlet may not be working.	Plug another electrical appliance, such as a lamp, into the outlet and turn it on. If the appliance does not work, plug the scanner into a different outlet.
	The AC outlet may be controlled by a wall switch.	Set the wall switch to provide AC power to the outlet, or use an outlet to be controlled by a switch.

Problem	Probable Cause	Solution
The Activity/Error LED does not light hen you configure the scanner.	You may have a faulty tag.	Try another tag.

Contacting Customer Service

If you encounter a problem using your system that you cannot resolve, contact Customer Service:

Before **contacting CUSTOMER SERVICE, please have the following information available:**

1. Scanner Information:

- **Model Number**
- **Serial Number, located on the bottom of scanner**
- **Any modifications made to the scanner or tags**
- **Location where system is installed**

2. Computer Information:

- **Computer Brand and Model number**
- **Processor speed and available RAM**
- **COM Port used**

SENSE TECHNOLOGY Support (86) 755-33356300

8:00 a.m. _ 5:00 p.m.

Suite 716~723. You Se Mansion ,No.6013 ShenNan Road Shenzhen China

Phone: 86-755-33356300 • Fax: 86-755-33341263

www.sense-hk.com • jason@sense-hk.com

Returning Your System

If SENSE TECHNOLOGY Customer Service determines you need to return your system for service, the Service Representative will give you a Return Merchandise Authorization (RMA). Write this number on the outside of the box containing the returned system, and on a slip of paper inside the box, so your return can be processed quickly.

Return only your scanner, antenna, cable, and adapter. Do not return accessories, such as the Diagnostic Label or the diskette containing the Scanner configuration program.

Follow these steps to return your scanner and accessories for service:

1. Carefully pack your scanner and accessories in the original static-protected bubble wrap and container. If you no longer have the original container, use a protected box.

2. Use filler material to cover the items in the box.

3. Add a note with the RMA number inside the package.

4. Write the RMA number and the word FRAGILE on the outside of the package in large, legible writing.

5. Address the package to:

SENSE TECHNOLOGY Corporation

Suite 716~723. You Se Mansion ,

No.6013 ShenNan Road Shenzhen China

Phone: 86-755-33356300 • Fax: 86-755-33341263

www.sense-hk.com • jason@sense-hk.com

ATTN: RMA # _____ (indicate your RMA number here)

Chapter 5

Specifications

SENSE TECHNOLOGY Patents

Sense-1820 Scanner Specifications

LEDs:

One Power ON LED,

One Transmit ON LED, and

One Antenna LED

Communication Method: RS-232

Serial transmission rate: Up to 57,600 bps

Connector: Female DB-9F for RS-232 communications

Pin assignments: (DB9F) Pin 1 _ Not used

Pin 2 - Transmit Data (Input)

Pin 3 - Receive Data (Output)

Pin 4 - Internally connected to Pin 6

Pin 5 - Protective Ground

Pin 6 - Internally connected to Pin 4

Pin 7 - Internally connected to Pin 8

Pin 8 - Internally connected to Pin 7

Pin 9 - Protective Ground
Power jack: Internal Power Module, External Power cable
RF Output Power: 1 Watts
Power Consumption: 15 watts

Ambient operating temperature: 0° to 50° C (32° to 122° F)

Approved Standards: FCC Part 15

Maximum serial

cable length: 10 meters (30 Feet)

Dimensions: 24 cm x 15 cm x 3 cm

Weight: 3 Kg

Buffered Comparator Input (BUFCOMPIN)

This is the analog output of the RF receiver. The pin must remain unconnected, or deterioration of read capability will occur.

Buffered Comparator (BUFCOMP)

This is the digitized output of the RF receiver.

Receiver blanking signal (BLANK)

When low, the microcontroller is ignoring the output from the RF receiver.

VCC

This is the 5.0 V regulated power for the interrogator. It should only be used as a reference. Current drawn in excess of 50 mA may cause the system to shut down.

Limited Warranty

SENSE TECHNOLOGY warrants its Sense-9000 series tags to be free from defects in workmanship and materials, under normal use and service, for a period of ninety (90) days from receipt of products.

SENSE TECHNOLOGY warrants its Scanner to be free from defects in workmanship and materials, under normal use and service, for a period of 1 year from date of receipt.

If a product does not operate as warranted during its applicable warranty period, SENSE TECHNOLOGY shall, at its option, repair the defective product or deliver to Customer an equivalent product to replace the defective item. All products that are replaced shall become the property of SENSE TECHNOLOGY. Replacement products may be new or reconditioned. The warranty for replacement or reconditioned product is the same as the equivalent newly purchased product.

SENSE TECHNOLOGY reserves the right to refuse to warranty repair any product that has been subjected to any abnormal electrical, mechanical, or environmental abuse.

FCC Part 15 Compliance

The FCC has established rules that permit the scanner and tag system to be used within acceptable bounds of radio frequency emissions. Your scanner and tag system complies with Part 15 of the FCC Rules.

Operation of the Scanner and Label system is subject to the following conditions: This device may not cause harmful interference; This device may accept any interference received, including interference that may cause undesired operation.

This device complies with the limits for a Class B digital device, pursuant to Part 15. The Class B limits help ensure that this device provides reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications.

Radio Frequency (RF) exposure

In order for this device to comply with FCC-adopted RF exposure limits, precautions must be taken. To meet the requirements of the FCC's Maximum Permissible Exposure (MPE) guidelines, persons should not be closer than 9 inches (23cm) to a transmitting antenna.

For installations where an operator must handle a tag or diagnostic tool closer than 9 inches to the transmitting antenna, the operator should ensure that the RF antenna is not transmitting prior to positioning the tag or tool. Once the operator has positioned the tag or diagnostoc tool, and moved away a minimum of 9 inches from the antenna, the antenna can be re-activated. For all installations labels must be placed on individual antennas, or signs must be displayed, indicating "CAUTION: A minimum separation distance of 9 inches must be maintained between an antenna and persons for meeting FCC RF Exposure compliance. See Users manual for details on operation requirements."

For more information on RF Exposure , where incidental exposure may exceed the above guideline, please refer to the FCC Office of Engineering and Technology Bulletin 65, Supplement C, Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, available online at:

http://www.fcc.gov/oet/info/documents/bulletins/

Disclaimer **Operation of any radio transmitting equipment, including the Scanner, may interfere with the functionality of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device if you have any questions. Other electronic equipment may also be subject to interference.**

SENSE TECHNOLOGY Support TEL(86) 755-33356300

8:00 a.m. _ 5:00 p.m. PST

Email _ techsupport@SENSE -HK.COM

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Suite 716~723. You Se Mansion ,No.6013 ShenNan Road Shenzhen China

Phone: 86-755-33356300 • Fax: 86-755-33341263

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CAUTION:

A minimum separation distance of 9 inches must be maintained between an antenna and persons to meet FCC RF Exposure compliance. See Users Manual for details on operation requirements.

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The antenna(s) used for this transmitter must be installed to provide a separating distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.