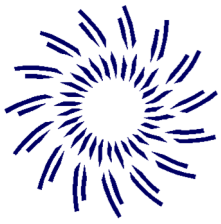
Flexpoint HS2R9



JADAK®
visionary thinking

Chapter 1 – Getting Started

The flexpoint™ HS2R9 from JADAK™ is a wireless Bluetooth BLE handheld scanner capable of decoding all major 1d and 2d barcode varieties as well as reading a broad variety of HF RFID tags. The HS2R9 consists of a highly configurable area imaging camera, decoding engine, and an HF RFID transceiver that will communicate via a Bluetooth BLE 4.1 interface.

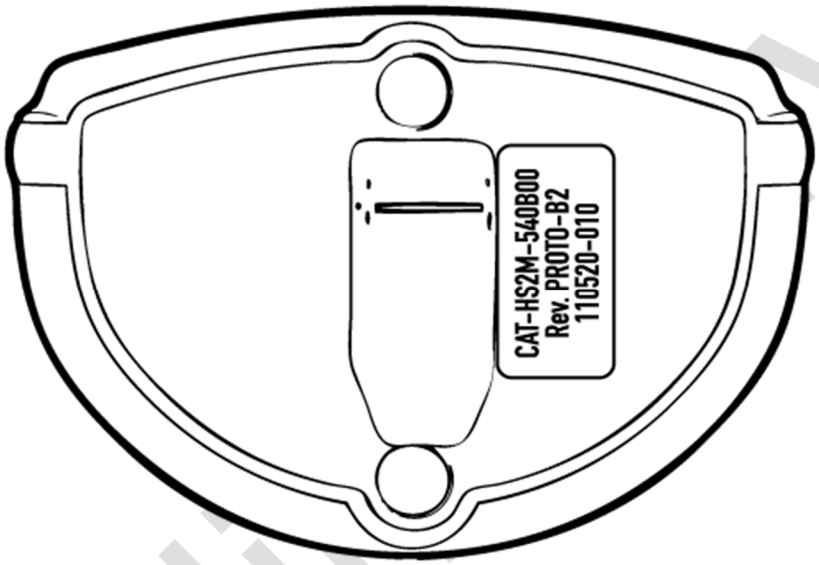
With a small ergonomic shape, the HS2R9 can be used in a wide variety of applications, but is especially designed for Healthcare applications and environments. The HS2R9 has a sealed housing that protects it from day to day debris and spills and is built with medical grade plastics that are compatible with popular medical cleansers and disinfectants.

About This Manual

This User's Guide provides installation and programming instructions for the flexpoint HS2R9. Product specifications, dimensions, warranty, and customer support information are also included. JADAK's bar code imagers are factory programmed for the most common terminal and communications settings. If you need to change these settings, programming is accomplished by scanning the bar codes in this guide. An asterisk (*) next to an option indicates the default setting.

flexpoint HS2R9 Imager Identification

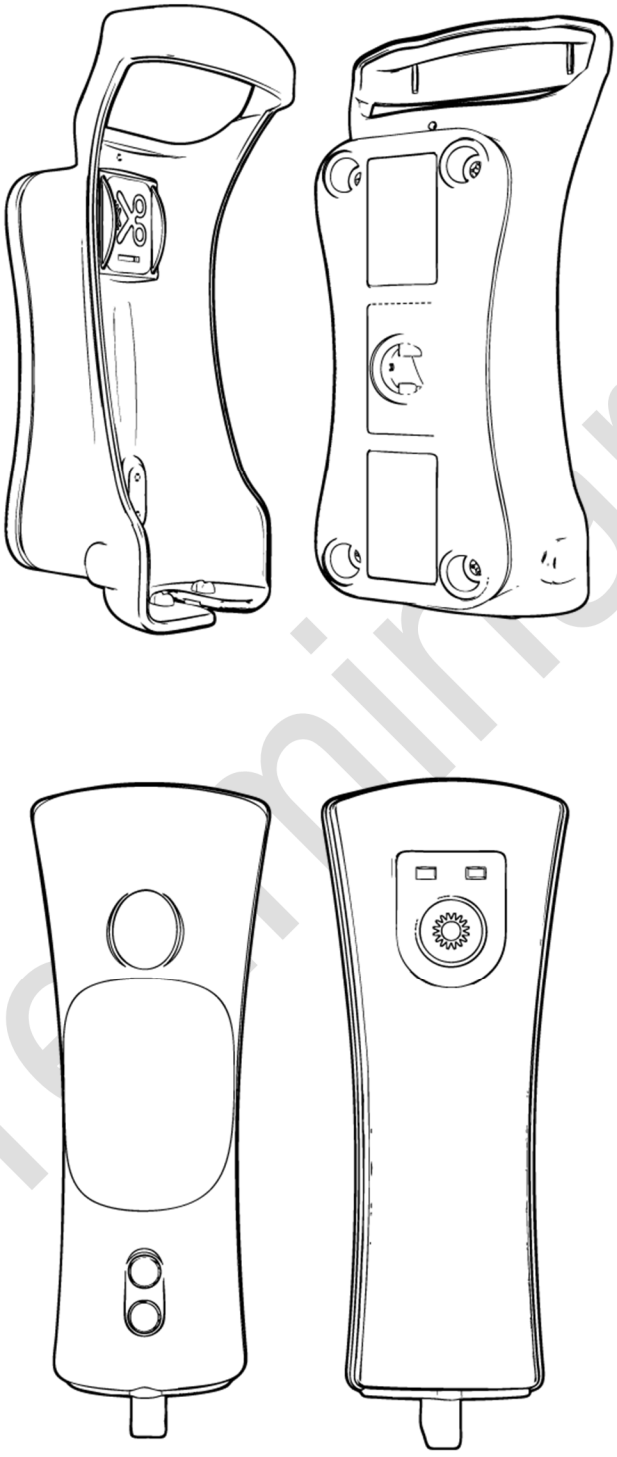
On the bottom of your scanner you will see a label as shown below:



Configuration String:
The configuration string defines the configuration style of the HS2R9 unit. Please consult the factory for configuration information.

Revision String:
The revision string indicates the revision number of the product. Serial Number: The serial number format is as follows: YYMMDD-NNN

Where:
YY = Year
MM = Month
DD = Day
NNN = Number of unit



flexpoint HS2R9 Imager Components

About the Battery

Power is supplied to the HS2R9 imager by a rechargeable battery located in the body of the imager. Each HS2R9 imager is shipped with a Lithium Ion battery already installed. See “HS2R9 Product Specifications” on page 8-1.

Charging Information

The HS2R9 imager is designed to recharge the battery whenever the imager is in the base. Be sure that the base is connected to an appropriate power supply.

Battery Recommendations

- Batteries are shipped approximately 30% to 60% charged and should be fully charged for maximum charge capacity.
- The battery is a lithium ion cell and can be used without a full charge, and can also be charged without fully discharging, without impacting the battery life. There is no need to perform any charge/discharge conditioning on this type of battery.
- Do not disassemble the battery. There are no user-serviceable parts in the battery.
- Keep the base connected to power when the host is not in use.
- Replace a defective battery immediately since it could damage the imager.
- Do not short-circuit a battery or throw it into a fire. It can explode and cause severe personal injury.

The Lithium Ion battery in the HS2R9 can be recharged many times. Eventually it will be unable to hold a charge and be unusable. *See Chapter 9, Replacing the Battery*

- A new battery at full charge should allow operation for a full 8 hour shift given a typical use case of scanning 30 times per hour (triggered for 5 seconds per scan).

- Recharging a fully discharged battery will take 3-4 hours depending on the level of use (scanning) while in the base.

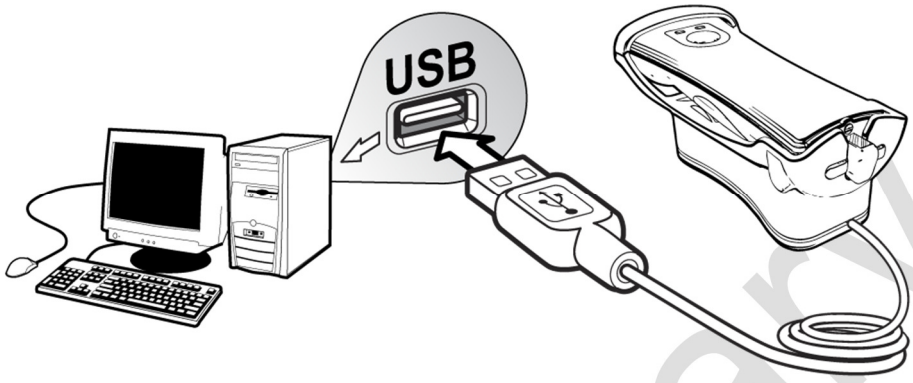
If you are not sure if the battery or charger is working properly please see the troubleshooting section, in Chapter 2.

Proper Disposal of the Battery

When the battery has reached the end of its useful life, the battery should be disposed of by a qualified recycler or hazardous materials handler. Do not incinerate the battery or dispose of the battery with general waste materials. You may send the imager's battery to JADAK (postage pre-paid). The shipper is responsible for complying with all federal, state, and local laws and regulations related to the packing, labeling, manifesting, and shipping of spent batteries. Since you may find your cost of returning the batteries significant, it may be more cost-effective to locate a local recycle/disposal company.

Connecting the Base

The base can be plugged into a computer's USB port.



When the base is connected, place the HS2R9 imager into the base to charge the battery. The imager's indicator LEDs flash, alternating between the green and red LED, to indicate the battery is charging. If only the red LED is flashing, this indicates the unit is charging but the voltage/charge is too low to allow operation (presentation mode) and charging simultaneously. Please wait until the HS2R9's LED's alternate between red and green before attempting to use in presentation mode while in the base.

Reading Techniques

The imager has a view finder that projects a bright red or green aiming beam that corresponds to the imager's horizontal field of view. The aiming beam should be centered over the bar code, but it can be positioned in any direction for a good read.

The aiming beam is smaller when the imager is closer to the code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit. To read a symbol (on a page or on an object), hold the imager at an appropriate distance from the target, pull the trigger, and center the aiming beam on the symbol. If the code being scanned is highly reflective (e.g., laminated), it may be necessary to tilt the code up 15° to 18° to prevent unwanted reflection.

Chapter 2 – Basic System Operation

Base

The USB-connected base provides the link between the HS2R9 and the host system. The base contains an interface assembly and an RF communication module. The interface assembly performs the data exchange between the HS2R9 and the host system.

The base is also the HS2R9's battery charger. Refer to "Base Charge Mode" on page 2-2 for additional information.

RF (Radio Frequency) Module Operation

The cordless system uses a two-way Bluetooth radio to transmit and receive data between the HS2R9 and the Base. Designed for point-to point applications, the radio operates using a license free ISM band, which sends relatively small data packets at a fast data rate over a radio signal with randomly changing frequencies, making the cordless system highly responsive to a wide variety of data collection applications and resistant to noisy RF environments.

Cordless HS2R9

The HS2R9 enables fast and accurate bar code scanning using a non-contact area image sensor.

The HS2R9 is comprised of an image engine, a decode/control assembly, and an RF communication module. The image engine performs the bar code image illumination and sensing. The decode/control assembly coordinates the central communication activities including: capturing and decoding the bar code image data, performing software activities (parameter menuing, visual indicator support, low battery indication), and data translation required for the host system. The RF communication module performs the data exchange between HS2R9 and the base.

System Conditions

The components of the cordless system interact in specific ways as you associate an HS2R9 to a base, as you move an HS2R9 out of range, bring an HS2R9 back in range, or swap HS2R9s between two bases. The following information explains the cordless system operating conditions.

Bluetooth Association Process

Once an HS2R9 is placed into the base, the HS2R9's battery charge status is checked and ,if a sufficient charge is available, the HS2R9 is powered on. The device will begin the association (establishing a one to one communication link) process if the **Associate on Power-up** setting has been enabled. If **Associate on Power-up** has not been enabled, the device will not associate with another device until one of two conditions occur:

- If a base's **Association** barcode is scanned (located in the well of the base in front of the contact pins) the HS2R9 will begin the association process with the Bluetooth module in that base.

- If a regular barcode is scanned, the HS2R9 will begin the association process with the last associated device.

HS2R9 Is Out of Range

The HS2R9 is in communication with its base, even when it is not transmitting bar code data. Whenever the HS2R9 handset cannot communicate with the base, it is out of range. If the device is out of range and you scan a bar code, the device will emit a clicking sound as it attempts to re-associate with the base.

- If the HS2R9 successfully re-associates with the base, the green indicator LED will flash once and the device will issue one Good Read (high frequency) beep. You may then re-scan the bar code.
- If the HS2R9 is unable to re-associate with the base after the Bluetooth association timeout duration (default is 20 seconds), the red indicator LED will flash once and the device will issue one Error (low frequency) beep.

- Once you move back into range, you may again attempt to re-associate the HS2R9 with the base by scanning a bar code. If the device is still unsuccessful in communicating with the base, you will need to place the HS2R9 in its base momentarily and scan the *Association* code in order to re-link them.

Base Charge Mode

Power is supplied to the HS2R9 imager by a rechargeable battery located in the body of the device. When the battery level falls below 3.4 Volts, the imager's red LED blinks to indicate the low battery situation. The HS2R9 should then be placed in the USB-connected base to re-charge. When the HS2R9 is charging, it will indicate this by flashing the red and green LEDs alternately.

If the battery charge falls below 3.2 Volts during use, the red LED will stop blinking and the HS2R9 will enter sleep mode to preserve battery life. Placing the HS2R9 into the base will initiate charging. The red LED will begin blinking again and will continue blinking until the battery level reaches 3.4 Volts, at which point the red and green LEDs will flash alternately indicating battery charging and potential use in presentation mode.

Beeper and LED Indicators

The HS2R9 contains LEDs on the top of the unit to indicate its power up, communication, and battery status. Simply stated, red LED = error; green LED = success of any type. The HS2R9's audible indicators have meaning as well, with a single low-frequency beep indicating an error and a single high-frequency beep indicating success.

The table below lists the indications of the LED illuminations:

Red LED (RFID)	Green LED (Barcode)	Meaning
Off	Off	Sleep, Idle, or no power (depleted battery)
Off	Blink once	Successful Barcode decode
Off	Blink once	Successful RFID read
Long Blink once	Off	Unsuccessful barcode decode / no read, or unsuccessful / partial RFID read
Blink once	Off	Bluetooth association attempt failed
Off	Blink once	Bluetooth association attempt succeed
Blinking	Off	Battery critically low if discharging, system ill shut down shortly.
Blinking	Off	Battery too low to power hand held up if in the cradle. The battery is charging, just very low. This state precedes the alternating red/green stat.
Alternating Red and Green Blinking		In base charging, alternating red/green state.
Off	On Continuously	Handheld in Active State (until sleep mode) (PHASE 2, Do Not Implement)
Off	On Continuously	Handheld Fully Charged (In Base)
Red and Green blink once simultaneously		Power up from Sleep. Blink on once simultaneously after a trigger press.

On	On	In base, base not powered, both LED's on constantly. This state will persist for about 2 minutes, then the unit will completely power down. The only way to wake it is to plug it into a powered base.
Blinking for approximately 12 sec.	Off	Power up self-check, internal communications error, RFID transceiver not detected.
Blinking for approximately 12 sec.	Off	Power up self-check, internal communications error, barcode scanner not detected. For this error the scanner will also beep for the same duration of time to differentiate between error modes.
Off	Blink Once (After R/NR Beep)	Successful Display
Blink Once (After R/NR Beep)	Off (After	Unsuccessful Display

The table below lists the indications of the beeper:

Function Active	Beeper Tone	Beeper Frequency	Meaning
Barcode	Single long high beep Approximate duration 250msec.	Approximate frequency 4,000Hz	Successful Decode
Barcode	Single long low beep Approximate duration 250msec.	Approximate frequency 500Hz	Un-Successful Decode / Barcode No Read
RFID	Single short high beep Approximate duration 100msec.	Approximate frequency 3,000Hz	Successful RFID read

RFID	Single short low beep Approximate duration 100msec.	Approximate frequency 200Hz	Un-successful / partial RFID read
Power up self-check initialization	Repeated Long low beeps. Limit duration to allow other function to still operate. Beep and flash red LED for approximately 12sec then stop indicators.	Approximate frequency 500Hz	Internal Communications error on the barcode scanner.
Power up beep sequence	Three beeps of increasing frequency	Varying	Power up
Bluetooth Association	Geiger counter beep		Bluetooth associating with base (opening connection)
	Two ascending beeps	Varying	Bluetooth association successful
	One long low beep	Varying	Bluetooth association failure
Menuing barcode	Two alternating high/low beeps	Varying	Menu barcode scanned to set internal configurations
Sleep mode	Three descending beeps	Varying	Tone indicates the device is entering low power mode 2. Communication will be closed for power savings
Successful Display	Single long high beep Approximate duration 250msec.	4,500hz	Information has been successfully displayed by host

Unsuccessful Display	Single long low beep Approximate duration 250msec.	800Hz	Information has not been successfully displayed by host

Troubleshooting

HS2R9 Scanner won't turn on (scan):

Battery Discharged – place the scanner in base to recharge (ensure the base is plugged into a **powered** USB port). A flashing red LED near the top trigger switch indicates the battery is charging but its' charge is too low to operate the HS2R9. This state will eventually change to alternating red and green LED's when the charge is sufficient to operate the HS2R9 while still in the base charging.

The time it takes to transition from a single flashing red LED state to alternating red and green LED state will depend on how discharged the battery was before placing into the base. This could take 30-60 minutes or more to change states.

Note – If a functioning HS2R9 is placed into a base that is not powered the HS2R9 will automatically turn itself off (completely) after approximately 2-3 minutes. This is to prevent the battery from discharging further while in the base. To turn the HS2R9 on again simply plug the base into a powered USB port with the HS2R9 in the base.

HS2R9 Scanner won't communicate with the base:

If after scanning a barcode the HS2R9 emits a clicking sound (association sound) for a period and then stops first check to ensure the base is plugged into a powered USB port.

If the base was powered scan the association barcode in the well of the base between the Bluetooth disassociation switch and the charging contact pins. The HS2R9 should then emit a clicking should for a short period while associating with the Bluetooth module in the base. Upon a successful Bluetooth association the HS2R9 will flash the green LED and emit a single short high frequency beep.

HS2R9 Scanner will not send data to the host:

If the HS2R9 is associated with the base but no data is being received by the host system check that the USB driver is installed on the host and the base has enumerated correctly.

Factory Contact:

If you are unable to resolve the problem with the HS2R9 after reading the troubleshooting section please use the contact information in chapter 10 for assistance.

Chapter 6 – Symbologies

This programming section contains the following menu selections. Refer to the Symbology command portion of the “J-Protocol Command List” for settings and defaults.

- All Symbologies

Linear Symbologies:

- Codabar
- Code 11
- Code 128
- Code 2 of 5
- Code 39
- Code 93
- EAN/JAN-13
- EAN/JAN-8
- GS1 DataBar Expanded (formerly RSS Expanded)
- GS1 DataBar Limited (formerly RSS Limited)
- GS1 DataBar Omnidirectional (formerly RSS-14)
- Interleaved 2 of 5
- Matrix 2 of 5
- UPC-A
- UPC-E

2D Symbologies:

- Aztec Code
- Data Matrix
- EAN•UCC Composite Codes
- MaxiCode
- MicroPDF417
- PDF417
- QR Code

All Symbologies

If you want to decode all the symbologies allowable for your imager, scan the All Symbologies On code. If on the other hand, you want to decode only a particular symbology, scan All Symbologies Off followed by the On symbol for that particular symbology.

Message Length Description

You are able to set the valid reading length of some of the bar code symbologies. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This helps reduce the chances of a misread.

EXAMPLE: Decode only those bar codes with a count of 9-20 characters.
Min. length = 09 Max. length = 20

EXAMPLE: Decode only those bar codes with a count of 15 characters.
Min. length = 15 Max. length = 15

For a value other than the minimum and maximum message length defaults, scan the bar codes included in the explanation of the symbology, then scan the digit value of the message length and Save bar codes from "Appendix A - Programming Bar Codes" on page A-1. The minimum and maximum lengths and the defaults are included with the respective symbologies.

Chapter 8 – Product SpecificationsHS2R9 Product Specifications

Parameter	**Specification**
Dimensions (Typical): Height Length Width Weight	 1.31 inches (34.4 mm) 4. 6 inches (116.8 mm) 2.02 inches (51.3 mm) 4.0 ounces (113.4 g)
Aimer: Illumination LEDS Aiming LEDS	 626 nm ± 30 nm 526 nm ± 30 nm
Image	VGA, 752x480
Skew Angle	± 40 degrees
Pitch Angle	± 40 degrees
Horizontal Velocity	4 inches (10 cm) per second
Scan Contrast	20% minimum for linear and Matrix codes

Battery: Lithium Ion Battery Capacity: Standby Heavy Usage (1 scan per second) Storage:	3.7 Volt, 950 mAHr minimum 20 hours 12 hours (maximum) 5% loss per month
Parameter	**Specification**
Voltage Requirements of Base: USB Power	5V (@ 500 mA maximum)
Current Draw of Base (Max @ 5VDC): HS2R9 in base, Presentation Mode HS2R9 Base without Handheld	Scanning Standby Inrush 475 mA 125 mA 950 mA 200mA 100mA 700mA
Power Supply: Noise Rejection	Maximum 100 mV peak to peak, 10 to 100 kHz
Radio: Frequency	Bluetooth Low Energy 4.1 2.4 to 2.48 GHz (ISM Band)
Temperature Ranges: Operating Battery Charge (Presentation Mode) Battery Charge (Standby Mode) Storage	 +32° F to +122° F (0° C to +50° C) +32° F to +95° F (0° C to 35° C) +32° F to +113° F (0° C to 45° C) -40° F to +140° F (-40° C to +60° C)
Humidity	0 to 95% non-condensing

Parameter	**Specification**
MTBF	Per MIL-HDBK-217F Ground Benign exceeds 100,000 hours
Sealant Rating	IP54

Chapter 9 – Maintenance

The HS2R9 provides reliable and efficient operation with a minimum of care. Although specific maintenance is not required, the following periodic checks ensure dependable product operation:

Cleaning the Scanning Window

Reading performance may degrade if the scanner's window is not clean. If the window is visibly dirty, or if the scanner isn't operating well, clean the window with a soft cloth or lens tissue dampened with water (or a mild detergent-water solution). If a detergent solution is used, rinse with a clean lens tissue dampened with water only.

Cleaning the Scanner Housing

The HS2R9 is IP54 rated when the cable is attached. This means that liquids and dusts will not penetrate into the housing; however, the scanner should not be submerged in water or other liquids. It is also good practice to dampen the cleansing cloth versus spraying the scanner directly.

The HS2R9 housing is compatible with the following cleaners:

Standard Cleaning Agents and Hand Sanitizers

Cleaning Agents	Dilution
10% Bleach	1 part bleach to 9 parts water
70% isopropyl alcohol (IPA)	No dilution required
Compublend II (Base V with fragrance)	0.5 oz/gallon water
Aseptizyme	1 oz/gallon water
Clorox Wipes	Not applicable
Detergezyme	1 oz/gallon water
Dispatch	No dilution required
Hibiclens	25.6 oz/gallon water
LpH Disinfectant Cleaner	0.5 oz/gallon water
Maxima 128	1 oz/gallon water
Metrizyme	1 oz/gallon water
Mild detergent	Per manufacturer's recommendation, as needed
Expose 256	0.5 oz/gallon water
Super Sani-Cloth	Not applicable
Virkon	Per manufacturer's recommendation
Warm water	Not applicable
Wexcide	1 oz/gallon water
Wexcide-Ready-To-Use	No dilution required
Hand sanitizers	
Purell w/ 65% Alcohol	No dilution required
3M Avagard D	No dilution required
EcoLab Quik-Care	No dilution required

⚠ Caution:

Do not submerge the imager in water. Do not use abrasive wipes or tissues on the imager's window – abrasive wipes may scratch the window.

Never use solvents (e.g., acetone, benzene, ether, or phenol-based agents) on the housing or window – solvents may damage the finish or the window.

Interface Cable

Inspect the USB interface cable and connector for wear or other signs of damage. A badly worn cable or damaged connector may interfere with scanner operation.

Should the cable be damaged, the cable can be replaced in the field.

Note: The use of non-JADAK cables voids the warranty; only a JADAK cable can be used to keep the IP54 rating.

Replacing the Battery

Replace the battery in the HS2R9 with a battery supplied by JADAK only. For instructions on replacing the battery see the HS2R9 Battery Replacement Guide.

Repairs

Repairs and/or upgrades are not to be performed on this product. These services are to be performed by JADAK only. Please contact JADAK for your service needs.

Chapter 10 – REGULATORY, Service, Maintenance

The product is designed to support the following regulatory and safety standards as a standalone unit. The end user will need to verify general EMC compliance as implemented in their host system. The end user will not need to verify RFID radio compliance since JADAK LLC tested the HS2R9 and received modular certification for this portion of the product.

10.1 FCC, IC

FCC Class B Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio or television technician for help.

Caution: Any changes or modifications made to this HS2R9, which are not expressly approved by JADAK LLC may void the user's authority to operate the equipment.

Note: To maintain compliance with FCC Rules and Regulations, cables connected to this HS2R9 must be shielded cables, in which the cable's shield wire(s) have been grounded (tied) to the connector shell.

10.2 Industry Canada IC Compliance

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Heath Canada's website www.hc-sc.gc.ca/rpb."

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference,

including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Intentional Radiator Modular Certification of the HS2R9

The HS2R9 also contains intentional radiators, the RFID transceiver and Bluetooth Low Energy communications. JADAK's approach to agency testing and certification for this was to get modular certification to facilitate easier integration of the device into end user systems. In most circumstances the integrator will not need to re-certify the intentional radiator, rather they can reference JADAK's certifications listed under the following:

Model Number: HS2R9

FCC ID: 2AAVI-HS2R9

IC: 11355A-HS2R9

10.3 CE

CE

The product conforms to the following EU directives:

Manufacturer	**JADAK LLC**
Address	**7279 William Barry Blvd, North Syracuse NY 13212**
Product Description	**CAT-HS2R9, Barcode / RFID Scanner, Model Number: HS2R9**

The described product conforms to the requirements of the following EU Directives:

LOW VOLTAGE DIRECTIVE **2006/95/EC as amended**

Council Directive of December 12, 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

EMC DIRECTIVE **2004/108/EC as amended**

Council Directive of December 15, 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility

ROHS DIRECTIVE **2011/65/EU**

Directive 2011/65/EU of the European Parliament and of the Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

WEEE DIRECTIVE **2012/19/EU**

Directive 2012/19/EU of the European Parliament and of the Council of 4th July 2012 on waste electrical and electronic equipment.

FIRST YEAR OF THE CE MARKING 2015

Conformity of the product with the requirements of EU directives is established through full compliance with the following standards:

Harmonised European Normes

Standard	Year + Amendments	Description
EN 60950-1	2006+A11:2009+A1:2010+A12:2011	Product Safety
EN 62471	2008	LED Safety
EN 50581	2012	RoHS
EN 55024	2010	Immunity
EN 55022	2010	EME
EN 61000-3-2	2006+A1:2009+A2:2009	Harmonics (current < 16A)
EN 61000-3-3	2008	Flicker (current < 16A)
ICES-003 Issue 5	2012	Emissions, Conducted and Radiated
EN 300 330-1 V1.7.1	2010	RFID (Radio)
EN 301 489-1 V1.9.2	2011	RFID (EMC)
EN 301 489-3 V1.6.1	2002	RFID (EMC)
FCC KDB's and RSS-102 Issue 5		EMF (Safety)
FCC RF Testing & Report per Part 15C for 13.56 MHz RFID		RFID
CFR47 Part 15 Subpart B		Radiated Emissions
FCC 15.225/IC RSS-210		Radiated Emissions
RSS-GEN Issue 4	November 2014	Radio Standards Specification
RSP-100 Issue 10	November 2014	Radio Standards Specification

10.4 – Customer Support

Obtaining Technical Assistance or Factory Service

JADAK provides assistance and service for all its products. To obtain warranty or non-warranty service, return the unit to JADAK (postage paid) with a copy of the dated purchase record attached. Contact the appropriate location below to obtain a Return Material Authorization number (RMA #) before returning the product.

If you need assistance installing or troubleshooting your scanner, please contact the JADAK office in your area.

North America

JADAK, LLC
Telephone: +1 315-701-0678
Fax: +1 315-701-0679
E-mail: info@jadaktech.com

Europe

JADAK BV
Telephone +31 (0)76-522-5588
Fax : +31 (0)76-522-4747
E-mail: info@jadaktech.com

10.4 Limited Warranty

JADAK LLC ("JADAK") warrants the HS2R9 to be free from defects in materials and workmanship and to conform to JADAK's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover the interface cable and does not include any JADAK product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of: (A) Modification or alteration by the purchaser or other party, (B) Excessive voltage or current supplied to or drawn from the interface connections, (C) Static electricity or electro-static discharge, (D) Operation under conditions beyond the specified operating parameters, or (E) Repair or service of the product by anyone other than JADAK or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by JADAK for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to JADAK factory for inspection. No product will be accepted by JADAK without a Return Materials Authorization, which may be obtained by contacting JADAK. In the event that the product is returned to JADAK within the Warranty Period and JADAK determines to its satisfaction that the product is defective due to defects in materials or workmanship, JADAK, at its sole option, will either repair or replace the product without charge, except for return shipping to JADAK.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

JADAK'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT WITH NEW OR REFURBISHED PARTS. IN NO EVENT SHALL JADAK BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF JADAK ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO JADAK FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN JADAK MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof. Use of any peripherals not provided by the manufacturer may result in damage not covered by this warranty. This includes but is not limited to: cables, power supplies, cradles, and docking stations. JADAK extends these warranties only to the first end users of the products. These warranties are non-transferable. The duration of the limited warranty for the flexpoint HS2R9 is for one (1) year.

Appendices

Appendix A - Programming Bar Codes


E


F


Save

Appendix B – ASCII Conversion Chart

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	00	NUL	32	20		64	40	@	96	60	‘
1	01	SOH	33	21	!	65	41	A	97	61	a
2	02	STX	34	22	“	66	42	B	98	62	b
3	03	ETX	35	23	#	67	43	C	99	63	c
4	04	EOT	36	24	$	68	44	D	100	64	d
5	05	ENQ	37	25	%	69	45	E	101	65	e
6	06	ACK	38	26	&	70	46	F	102	66	f
7	07	BEL	39	27	‘	71	47	G	103	67	g
8	08	BS	40	28	(	72	48	H	104	68	h
9	09	HT	41	29	)	73	49	I	105	69	i
10	0A	LF	42	2A	*	74	4A	J	106	6A	j
11	0B	VT	43	2B	+	75	4B	K	107	6B	k
12	0C	FF	44	2C	,	76	4C	L	108	6C	l
13	0D	CR	45	2D	-	77	4D	M	109	6D	m
14	0E	SO	46	2E	.	78	4E	N	110	6E	n
15	0F	SI	47	2F	/	79	4F	O	111	6F	o
16	10	DLE	48	30	0	80	50	P	112	70	p
17	11	DC1	49	31	1	81	51	Q	113	71	q
18	12	DC2	50	32	2	82	52	R	114	72	r
19	13	DC3	51	33	3	83	53	S	115	73	s
20	14	DC4	52	34	4	84	54	T	116	74	t
21	15	NAK	53	35	5	85	55	U	117	75	u
22	16	SYN	54	36	6	86	56	V	118	76	v
23	17	ETB	55	37	7	87	57	W	119	77	w
24	18	CAN	56	38	8	88	58	X	120	78	x
25	19	EM	57	39	9	89	59	Y	121	79	y
26	1A	SUB	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC	59	3B	;	91	5B	[	123	7B	{
28	1C	FS	60	3C	<	92	5C	\	124	7C	|
29	1D	GS	61	3D	=	93	5D	]	125	7D	}
30	1E	RS	62	3E	>	94	5E	^	126	7E	~
31	1F	US	63	3F	?	95	5F	_	127	7F	

Appendix B – ASCII Conversion Chart (continued)

Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char
128	80	€	160	A0		192	C0	À	224	E0	à
129	81	□	161	A1	¡	193	C1	Á	225	E1	á
130	82	‚	162	A2	¢	194	C2	Â	226	E2	â
131	83	*ƒ*	163	A3	£	195	C3	Ã	227	E3	ã
132	84	„	164	A4	¤	196	C4	Ä	228	E4	ä
133	85	…	165	A5	¥	197	C5	Å	229	E5	å
134	86	†	166	A6	¦	198	C6	Æ	230	E6	æ
135	87	‡	167	A7	§	199	C7	Ç	231	E7	ç
136	88	ˆ	168	A8	¨	200	C8	È	232	E8	è
137	89	‰	169	A9	©	201	C9	É	233	E9	é
138	8A	Š	170	AA	ª	202	CA	Ê	234	EA	ê
139	8B	‹	171	AB	«	203	CB	Ë	235	EB	ë
140	8C	Œ	172	AC	¬	204	CC	Ì	236	EC	ì
141	8D	□	173	AD	-	205	CD	Í	237	ED	í
142	8E	Ž	174	AE	®	206	CE	Î	238	EE	î
143	8F	□	175	AF	¯	207	CF	Ï	239	EF	ï
144	90	□	176	B0	°	208	D0	Ð	240	F0	ð
145	91	‘	177	B1	±	209	D1	Ñ	241	F1	ñ
146	92	’	178	B2	²	210	D2	Ò	242	F2	ò
147	93	“	179	B3	³	211	D3	Ó	243	F3	ó
148	94	”	180	B4	´	212	D4	Ô	244	F4	ô
149	95	•	181	B5	µ	213	D5	Õ	245	F5	õ
150	96	–	182	B6	¶	214	D6	Ö	246	F6	ö
151	97	—	183	B7	·	215	D7	×	247	F7	÷
152	98	˜	184	B8	¸	216	D8	Ø	248	F8	ø
153	99	™	185	B9	¹	217	D9	Ù	249	F9	ù
154	9A	š	186	BA	º	218	DA	Ú	250	FA	ú
155	9B	›	187	BB	»	219	DB	Û	251	FB	û
156	9C	œ	188	BC	¼	220	DC	Ü	252	FC	ü
157	9D	□	189	BD	½	221	DD	Ý	253	FD	ý
158	9E	ž	190	BE	¾	222	DE	Þ	254	FE	þ
159	9F	Ÿ	191	BF	¿	223	DF	ß	255	FF	ÿ

Appendix C - Symbology Chart

[This Appendix may go away completely per internal discussion... or the full Symbology Chart below may be replaced with a chart containing only the HS2R9 supported symbologies (see Artwork folder).

Symbology	AIM ID	Possible AIM ID Modifiers (*m*)	Code ID (hex)
All Symbologies			(0x99)
Australian Post	]X0		A (0x41)
Aztec Code	]z*m*	0-9, A-C	z (0x7A)
British Post	]X0		B (0x42)
Canadian Post	]X0		C (0x43)
China Post	]X0		Q (0x51)
Codabar	]F*m*	0-1	a (0x61)
Codablock F	]O*m*	0, 1, 4, 5, 6	q (0x71)
Code 11	]H3		h (0x68)
Code 128	]C*m*	0, 1, 2, 4	j (0x6A)
Code 16K	]K*m*	0, 1, 2, 4	o (0x6F)
Code 32 Pharmaceutical (PARAF)	]X0		< (0x3C)
Code 39	]A*m*	0, 1, 3, 4, 5, 7	b (0x62)
Code 49	]T*m*	0, 1, 2, 4	l (0x6C
Code 93 and 93i	]G*m*	0-9, A-Z, a-m	i (0x69
Data Matrix	]d*m*	0-6	w (0x77)
EAN-13	]E0		d (0x64)
EAN-8	]E4		D (0x44)
EAN•UCC Composite	]e*m*	0-3	y (0x79)
EAN-13 with Extended Coupon Code	]E3		d (0x64)
Interleaved 2 of 5	]I*m*	0, 1, 3	e (0x65)
Japanese Post	]X0		J (0x4A)
KIX (Netherlands) Post	]X0		K (0x4B)
Korea Post	]X0		? (0x3F)
Matrix 2 of 5	]X0		m (0x6D)
MaxiCode	]U*m*	0-3	x (0x78)
MicroPDF417	]L*m*	3-5	R (0x52)
MSI	]M*m*	0	g (0x67)

Appendix C - Symbology Chart (continued)

Symbology	AIM ID	Possible AIM ID Modifiers (*m*)	Code ID (hex)
No Read			(0x9C)
OCR-A	]o1		O (0x4F)
OCR-B	]o2		O (0x4F)
OCR MICR E-13B	]ZE		O (0x4F)
OCR SEMI Font	]o3		O (0x4F)
OCR US Money Font	]o3		O (0x4F)
SEMI Font	]o3		O (0x4F)
PDF417	]L*m*	0-2	r (0x72)
Planet Code	]X0		L (0x4C)
Plessey Code	]P0		n (0x6E)
PosiCode	]p*m*	0, 1, 2	W (0x57)
Postnet	]X0		P (0x50)
QR/Micro QR Code	]Q*m*	0-6	s (0x73)
Reduced Space Symbology (RSS-14, RSS Limited, RSS Expanded)	]e*m*	0	y (0x79)
Straight 2 of 5 IATA (two-bar start/ stop)	]R*m*	0, 1, 3	f (0x66)
TCIF Linked Code 39 (TLC39)	]L2		T (0x54)
Telepen	]B*m*	0, 1, 2, 4	t (0x74)
Trioptic Code	]X0		= (0x3D)
UCC/EAN-128	]C1		I (0x49)
UPC-A	]E0		c (0x63)
UPC-A with Extended Coupon Code	]E3		c (0x63)
UPC-E	]E0		E (0x45)
VeriCode*	]X0		v (0x76)

Appendix D - Data Matching, Collation [Needs 7-bit commands]

Data Matching, Collation, GS1 and Japan 2 byte menu commands and descriptions:

Notes on value column:
Boolean valued commands use "/" to separate values
Numeric valued commands use "," to separate values
String valued commands use "" to designate they take any ASCII character strings or K codes (see GS1ORD menu command for details)
Simple commands have no value to set and are therefore left blank

Data Matching and Collation:

Menu Command	Value	Description	How its used
DAT121	1/0	Enter Data Matching One to One.	(1) Enter "DAT1211" (2) scan master barcode. (3) Scan comparison barcode. It will either give a good read beep or an error beep. (4) repeats steps 2 and 3 until exit (5) to exit, enter "XITDAT"
DAT12N	1/0	Enter Data Matching One to N.	1) Enter "DAT12N1" (2) scan master barcode (3) scan comparison barcodes. It will either give a good read beep or an error beep. (4) to exit, enter "XITDAT"
DATN2N	1/0	Enter Data Matching N to N.	1) Enter "DATN2N1" (2) scan master barcodes (3) enter "XITLRN" to exit master barcode set (4) scan comparison codes. It will either give a good read beep or an error beep. (5) to exit, enter "XITDAT"
MATMOD	1,2,3	Matching Criteria. 1 - match on length, order and characters 2 - match on length and characters 3 - match on characters only	*used in conjunction with DAT121, DAT12N and DATN2N. Can be changed in between steps (1) and (2) in above descriptions.

COLENA	1/0	Enter Collation Mode.	(1) enter "COLENA1", (2) scan master barcode (3) enter "COLMAS1" then scan programming code for the master start position (4) enter “XITPRO” to exit programming the master start position (5) enter “COLSLV1” then scan the programming code for the “slave” start position ie. comparison code (6) enter “XITPRO” to exit programming the slave start position (7) enter “COLCNT1” then scan the programming code for the slave count -or number of characters to compare (8) enter “XITPRO” to exit programming the count (9)**optional** enter “COLSUB1” to turn on ability to print only the matching sub barcode or enter “COLSUB0” to print the entire barcode that has the matching subset. (10) to exit, enter “COLENA0”
COLMAS	1/0	Indicates that user will begin scanning the master start position.	See COLENA
COLSLV	1/0	Indicates that user will begin scanning the slave start position.	See COLENA
COLCNT	1/0	Indicates that user will begin scanning the number of slave characters to compare.	See COLENA
COLSUB	1/0	Turns on and off ability to print just the matched sub barcode indicated by COLCNT or the entire matched barcode.	See COLENA
XITPRO		Exits programming	Indicates the user is finished programming a specific function

How N to N mode works:

Compile a list of master barcodes

Example:

Master barcode list	Found match?
ABCD	
CDEFG	
HIJK	

Once list is complete, the user then starts scanning comparison codes based on the matching criteria selected (1 is the default setting: match on length, order, and characters) . As each master finds its match, a check is marked in the found match column.

Example: user scans a barcode: ABCD

Master barcode list	Found match?
ABCD	X
CDEFG	
HIJK	

Now that the first master has a match, no other Comparison code will be able to match that barcode (sends an error condition). So if the user then scanned ABCD again it would send an error condition until the entire 'found match' column is filled:

Example: user scans 2 barcodes: CDEFG and HIJK

Master barcode list	Found match?
ABCD	X
CDEFG	X
HIJK	X

Now that all masters have found a match, the 'found match' column will reset:

Master barcode list	Found match?
ABCD	
CDEFG	
HIJK	

And now the user can start all over again until they exit the data matching mode.

Appendix E – GS1 Formatting [Needs 7-bit commands]

Menu Command	Value	Description	How its used
EAN128	1/0	Turn on/off GS1 formatting	If on all of the GS1 output settings will be on (as set by the user). If off all GS1 settings will be off.
OUTFNC	1/0	Turn on/off printing leading FNC1 character of the output barcode	Turn on: OUTFNC1 Turn off: OUTFNC0
OUTAFN	1/0	Turn on/off printing leading FNC1 for all FNC1 characters (leading and variable)	Turn on: OUTAFN1 Turn off: OUTAFN0
OUTPRG	1	Turn on ability to begin programming the variable FNC1 character	(1) enter "OUTPRG1" (2) scan 2 codes from the programming chart to form the hex value of the character you want the var. FNC1 to take. Example: scanning '5' 'F' will program the var. FNC1 to look like an underscore '_' **Once the user has scanned 2 programming codes the setting will automatically turn off and the setting will be complete. See next menu command for how to clear the var. FNC1 char.
OUTFN1	0,…,0x7F	Menu command that holds the value of the variable FNC1 character	If the user would prefer to set the variable FNC1 without using the programming codes they would use this function. Example: enter "OUTFN15F" would also set the character to '_'. **The only way to clear this value using either method is to enter "OUTFN10" Note: This will not output the char if it is the last app id in the barcode

PREPRG	1	Turn on ability to begin programming the prefix applied to all App Ids.	(1) Enter “PREPRG1” (2) scan 2 codes from the programming chart to form the hex value of the character you want the prefix to take. Example: scanning ‘5’ ‘F’ will program the prefix applied to all app ids to look like an underscore ‘_’ **Once the user has scanned 2 programming codes the setting will automatically turn off and the setting will be complete. See next menu command for how to clear the prefix.
OUTPRE	0,…,0x7F	Menu command that holds the value of the prefix character applied to all app ids.	If the user would prefer to set the variable FNC1 without using the programming codes they would use this function. Example: enter “OUTPRE5F” would also set the character to ‘_’. **The only way to clear this value using either method is to enter “OUTPRE0”
OUTDAT	1/0	Date code options	0 – send date YYMMDD as is 1 – do not send 00 for DD, if DD = 00 only output YYMM
OUTAID	0,1,2	Output App Id options	0- Do not output the App Id 1- Output the App Id with ( ) surrounding it 2- Output the App Id without ( )
GS1OEN	1/0	Turn on/off GS1 output ordering setting	0- GS1 output ordering is off and will print entire barcode 1- GS1 output ordering is on

GS1ORD	“”	Stores order list	Example: entering “GS1ORD17|21|10” will create an output order list of 17, 21, and 10 in that order. Then when a barcode is scanned it will only output those in the order list. **NOTE: the order list default has nothing in it therefore if the user enters GS1 ordering mode without setting a list it will give a good read beep when a barcode is scanned but will not output anything.
GS1OCL		Clears Order List	Resets order list to empty
GS1PRE	“”	Stores GS1 prefix settings	Example: entering “GS1PRE175F” will add the prefix “_” to App Id 17. The user could also add more than one prefix if they preferred. Example of multiple prefixes set: Enter “GS1PRE175F|21626B” would add the prefix “_” to App Id 17 and “bK” to app id 21. ** Example to clear one app id, for this example: app id 17: Enter “GS1PRE1700”
GS1PDF		Clears prefix list	Resets all App Id prefix
GS1SUF	“”	Stores GS1 prefix settings	Used the same as GS1PRE only the command name is different. See GS1PRE for more details.
GS1SDF		Clears suffix list	Resets all App id suffix
GS1SAV		Save GS1 Settings	Saves all GS1 Settings such that on a power cycle the previous settings can be retrieved. This is done internally but could also be called by the user
GS1LOD		Load GS1 Settings	Loads GS1 Settings saved using GS1SAV. Example: user power cycles device, then enters “GS1LOD” now all settings should be reloaded to the device. *User may have to turn GS1 formatting back on but all settings will be active once that is done.

Appendix F - Japan 2 Byte Output Mode [Needs 7-bit commands]

Menu Command	Value	Description	How its used
ALTENA	1/0	Turns on/off Japan 2 byte output mode. **see Additional notes	Works in conjunction with Japan Keyboard mode (TERMID134) to output Japanese 2 byte characters. 0 – Japan 2 byte mode off 1- Japan 2 byte mode on
KEYENA	1/0	Turns on/off Japan Keyence output mode. **see Additional notes	Works in conjunction with Japan Keyboard mode (TERMID134) to output Japanese 2 byte characters. 0 – Keyence mode off 1- Keyence mode on

Appendix G – HS2R9 Theory of Operation

HS2R9 Product Overview

The HS2R9 is a wireless Bluetooth BLE handheld scanner capable of decoding all major 1d and 2d barcode varieties as well as reading a broad variety of HF RFID tags. The HS2R9 consists of a highly configurable area imaging camera, decoding engine, and an HF RFID transceiver that will communicate via a Bluetooth BLE 4.1 interface.

HS2R9 Operating Description

The unit can read both RFID and barcode, but not simultaneously. If the unit is not triggered to read barcodes (top trigger button is not pressed or not serially triggered), the unit will be in RFID mode actively scanning for RFID tags.

When the unit is triggered to read a barcode (top trigger button is pressed or serially triggered), the RFID transceiver will be put into low power mode before enabling the barcode scanner. Conversely either after a barcode scan or trigger release (manual or serial), the barcode reader is put into low power mode before enabling the RFID transceiver. When the RFID portion of the scanner is active it is attempting to read ISO 15693 tags as our current customer requirements are only for that tag type.

Alternating the operational modes described above reduces current draw to extend battery life. The beeper is also only activated after the barcode reader is off to keep current draw at a minimum.

NOTE: A special version of firmware was developed for the HS2R9 specifically for agency RFID modular testing. This firmware allow for independent selection of one of four different tag types which encompass the four different modulation techniques of the transceiver. When any one of these four different modes is selected, this is the only modulation technique active, and the HS2R9 will then only read that specific tag type.

HS2R9 Technical Description

The HS2R9 consists of four subsections:

1 – Barcode scanner.

2 – RFID transceiver and antenna (transceiver is NXP CLRC663).

3 – Microcontroller (Freescale Kinetis, MKL25Z128VLH4).

4 – Bluetooth Module (Microchip, RN4020-V/RM).

1 – The Barcode scanner consists of two major components, the imager engine and the decoder board. The imager engine contains a CMOS imaging sensor and separate external illumination. The decoder board contains a microprocessor with external RAM and FLASH used to capture and process images from the image engine.

2 – The RFID transceiver and antenna consist of an NXP RFID transceiver part number CLRC66301HN,551 and a custom loop antenna. The loop antenna is essential a flex circuit that mounts around the image engine and interfaces to the circuit board housing the CLRC663 via a flex circuit and connector on the interface board. The antenna is shielded on both along the length of the flex tail up to the loop portion. The shield is tied to the ground trace on the antenna which is tied directly to the ground of the circuit board.

3 – The Microcontroller on the interface board controls the power and communications links between itself and both the barcode scanner and the RFID transceiver.

The communication link between the barcode scanner and the microcontroller is via a RS-232 interface.

The communication link between the RFID transceiver and the microcontroller is via a SPI interface.

The microcontroller monitors PIO for external input and output control, interfaces to the base station via a Bluetooth communications link, controls the barcode scanner and communications, controls battery charging, and controls the RFID transceiver and communications.

The microcontroller also controls the power states of both the barcode scanner and the RFID transceiver to ensure the device complies with the USB current limit.

4 – The Bluetooth module on the interface board and the base station serves as the communication link. This consists of a pre-certified Bluetooth module from Microchip, model number RN4020-V/RM.

HS2R9 RFID Modes

The HS2R9 will read multiple RFID tag types. When the RFID module is active the firmware in the microcontroller attempts to read ISO 15693 tags.

For the RFID agency testing only, a special mode was created that allows for independent selection of and activation of all supported tag types.

The new command added to the firmware is #RF_TEST which allows the following values which incorporate all supported RFID tags:

0 = Attempt to read all tag types, this cycles through all modulation techniques for all supported tags.
1 = Only enable and read ISO15693 Tags
2 = Only enable and read ISO1443A Tags
3 = Only enable and read ISO1443B Tags
4 = Only enable and read Felica Tags
These numbers 0-4 above correspond to the barcodes below.

It is necessary to change these modes during testing to activate only specific modulation techniques for the RFID. To do this, please scan the appropriate barcodes below corresponding to the commands above to change the modulation technique of the RFID transceiver. To change

between any of the individual techniques please scan first the #RF_TEST 0 barcode, and then scan the other barcode mode 1-4 that you wish to enable.

#RF_TEST 0

#RF_TEST 1

#RF_TEST 2

#RF_TEST 3

#RF_TEST 4

Appendix H – Laser Safety

CAUTION: This device emits CDRH/IEC Class 2 laser light. Do not stare into beam.

This product contains a red (640-660nm), 1mW class 2 Laser Aimer. It conforms to the requirements of IEC/EN 60825-1 (2001) under all operating conditions and meets the accessible radiation limits (AELs) required for a Class 2 laser product.

Appendix I – Power Input

5V ⎓ 500mA

Base input power is 5V DC @ 500mA. Power provided through a standard USB cable attached to base.