JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 1 of 21

PRODUCT INTEGRATION GUIDE

For

Flexpoint HS-1R:

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ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 2 of 21

JADAK   7279 William Barry Blvd., North Syracuse, NY 13212

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 3 of 21

JADAK LLC

ISO9001:2000
Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 4 of 21

Document Revision History

Version	Date	Author	Description
A	4/5/2013	Mark Macko	First Draft

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 5 of 21

JADAK

1   GENERAL DESCRIPTION

This document contains the HS-1R product general operational, electrical, physical and environmental specifications. Unless otherwise indicated, the specifications are not cumulative. Unless otherwise stated, the performance requirements in the specification refer to scanner performance at 5.0Vdc and room temperature of 20°C.

1.1   Product Overview

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

NOTE: At this time the HS-1R will only read the UID of non-encrypted RFID tags and with specific commands described in section 5.1.2 it will also read and write ISO15693 tag types.

2   Functional Requirements

2.1   Modes:

2.1.1   Menuing Mode

The HS-1R will be programmable via menu commands or menu barcodes.
All menuing commands are formatted and supported via the JADAK abstraction document.
Reference Vault at: $/Engineering/Shared/Docs and White Papers/
- DOC-0122 J-Protocol Ascii Spec.doc
- DOC-0178 J-Protocol Binary Spec.doc

2.1.2   Download Mode

The HS-1R firmware can be downloaded via the main communications interface connector.

Programming
Programming is achieved by using PC Application software to download firmware to the HS-1R barcode scanner, Kinetis microcontroller, and boot loader.
After programming is complete, the HS-1R should be power cycled to return to normal operation.

Image Engine Firmware Download
The Image Engine Firmware can be upgraded via the USB CDC Comm interface of the unit.   To upgrade the image engine, the user must first scan the image engine upgrade

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 6 of 21

barcode or send the appropriate menu command.   At that point the image engine firmware can be transferred to the device using the appropriate PC software.

After flashing is complete, the unit should be power cycled to return to normal operation.

3   Scanner Functions

3.1 Trigger / Modes:

3.1.1 Hardware Trigger

The top pushbutton hardware trigger provides a means to manually trigger the scanner through a switch on the top housing which will initiate barcode decoding. A trigger event will initiate decoding / scanning mode for as long as the trigger switch is closed, until a valid barcode is decoded, or until the decode session times out.

3.1.2 Serial Trigger

Serial trigger operation is supported via the communications interface in USB COMM mode only. Commands received via the interface will activate/deactivate the trigger function. The scanner may also be set to automatically deactivate the trigger after a specified time period has elapsed following a serial trigger activate command.

3.2 Bar Code Decoding

3.2.1 Codes supported

The HS-1R will automatically discriminate between and decode the following bar codes:

Barcode	
Aztec	Matrix 2 of 5
China Post (Hong Kong 2 of 5)	Maxicode
Chinese Sensible (Han Xin)	MicroPDF417
Codabar	MSI
Codablock A	NEC 2 of 5
Codablock F	Postal Codes-2D
Code 11	Postal Codes Linear
Code 128	PDF417
Code 32 Pharmaceutical (PARAF)	QR
Code 39	Straight 2 of 5 IATA (two-bar start/stop)
Code 93	Straight 2 of 5 Industrial (three-bar start/stop)
Data Matrix	TCIF Linked Code 39 (TLC39)
EAN/JAN-13	Telepen

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 7 of 21

EAN/JAN-8	Trioptic
GS1 Composite	UPC-A
GS1 DataBar Expanded	UPC-A/EAN-13 with Extended Coupon Code
GS1 DataBar Limited	UPC-E0
GS1 DataBar Omnidirectional	UPC-E1
GS1 Emulation	
GS1-128	
Interleaved 2 of 5	
Korea Post	

3.2.2 Read range vs. Element size

Below are typical barcode decode distances for the HS-1R.

Symbol Density/Barcode Type	High Density (HD)		Standard Range (SR)		Extended Range (ER)	
Symbology	Near Distance (in/cm)	Far Distance (in/cm)	Near Distance (in/cm)	Far Distance (in/cm)	Near Distance (in/cm)	Far Distance (in/cm)
3mil C39/128	2.2 (5.6)	3.1 (7.9)	-	-	-	-
5mil C39/128	1.6 (4.1)	4.5 (11.4)	3.0 (7.6)	6.1 (15.5)	5.8 (14.7)	8.8 (22.4)
7.5mil C39/128	1.8 (4.6)	5.0 (12.7)	2.4 (6.1)	8.4 (21.3)	4.4 (11.2)	13.0 (33.2)
10mil C39/128	1.7 (4.3)	5.1 (13.0)	1.9 (4.8)	12.0 (30.5)	3.2 (8.1)	16.1 (40.9)
15mil C39/128	1.4 (3.6)	7.6 (19.3)	2.2 (5.6)	17.9 (45.5)	2.0 (5.1)	19.0 (48.3)
20mil C39/128	2.7 (6.9)	8.6 (21.8)	2.8 (7.1)	17.8 (45.2)	3.1 (7.9)	22.8 (57.9)
100% UPC	2.2 (5.6)	6.7 (17.0)	2.1 (5.3)	15.0 (38.1)	2.8 (7.1)	19.0 (48.3)
5mil PDF417	1.7 (4.3)	4.2 (10.7)	3.0 (7.6)	4.5 (11.4)	6.1 (15.5)	7.4 (18.8)
6.7mil PDF417	1.7 (4.3)	4.7 (11.9)	2.5 (6.4)	6.6 (16.8)	4.7 (11.9)	9.8 (24.9)
10mil PDF417	1.8 (4.6)	5.6 (14.2)	1.7 (4.3)	10.5 (26.7)	2.4 (6.1)	14.9 (37.8)
5mil MicroPDF	2.2 (5.6)	4.4 (11.2)	-	-	-	-
5mil DataMatrix	2.0 (5.1)	3.0 (7.6)	-	-	-	-
10mil DataMatrix/Aztec	1.7 (4.3)	4.7 (11.9)	2.9 (7.4)	7.3 (18.5)	5.3 (13.5)	10.0 (25.4)
20mil DataMatrix	1.7 (4.3)	7.0 (17.8)	2.9 (7.4)	14.2 (36.1)	4.0 (10.2)	16.0 (40.6)
10mil QR	3.0 (7.6)	4.5 (11.4)	2.6 (6.6)	6.9 (17.5)	4.3 (10.9)	10.4 (26.4)
20mil QR	2.2 (5.6)	7.2 (18.3)	2.0 (5.1)	15.0 (38.1)	2.1 (5.3)	17.7 (45.0)
32mil Maxicode	2.2 (5.6)	8.3 (21.1)	2.9 (7.4)	15.3 (38.9)	4.2 (10.7)	17.7 (45.0)

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 8 of 21

3.3 Optical

3.3.1 Area Imager Engines

Standard versions of the HS-1R are available in focal ranges specified as "HD", "SR", "ER", all in a monochrome image format.

3.3.2 Image Downloading

The HS-1R shall provide for the ability to transfer, via the default communications interface, the minimum of an entire image in standard bitmap (.bmp compatible) and compressed (.jpg compatible) format. ***This feature is not currently supported!***

4 Indicators

4.1 Beeper, Vibration Motor, Trigger Switch LED's

4.1.1 Beep Tone Indicators.

The following indicators are used to denote the different beeper states of the HS-1R upon exercising an operational function, barcode, RFID, power on.

Function Active	Beeper Tone	Beeper Frequency	Meaning
Barcode	Single short high beep Approximate duration 250msec.	Approximate frequency 4,000Hz	Successful Decode
Barcode	No Beep	None	Un-Successful Decode / Barcode No Read
RFID	Single short high beep Approximate duration 100msec.	Approximate frequency 3,000Hz	Successful RFID read
RFID	No Beep	None	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. Note: Beeper is off when global beeper volume setting is off.
Power up beep sequence	Three beeps of increasing frequency	Varying	Power up Note: Beeper is off when global beeper volume setting is off.

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 9 of 21

JADAK

4.1.2 Global Beeper Volume Level Settings

The table below describes the global beeper volume settings.

Off	Off	None	Command disabled.
High	High	TBD	All beeps at highest volume level.
Medium	Medium	TBD	All beeps at medium volume level.
Low	Low	TBD	All beeps at low volume level.

4.1.3 Vibration Motor Indicators

The table below describes the different beep tones of the HS-1 RFID.

Function Active	Vibration motor	Approximate Vibration duration Seconds	Meaning
Barcode	Single short vibration	0.5	Successful Decode
Barcode	No Vibration	None	Un-Successful Decode / Barcode No Read
RFID	Single short vibration	0.5	Successful RFID read
RFID	No vibration	None	Un-successful / partial RFID read
Off	Off	None	Command disabled.
Power up / self check initialization	Off	None	Even with vibration mode is enabled there is no vibration on power up.

5 RFID Specifications

5.1.1 Read Range

Note, the read range will be variable and depending on the target tag size and Tag Type. The average read range is between contact and 2cm.

5.1.2 RFID Tag Types

The following RFID tag types can read and written by the HS-1 RFID:

The ability to write a RFID tag is currently only implemented for the ISO15693 tag type and is described in the document titled "QF16-HS1-R RFID Commands.doc".

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 10 of 21

RFID SUPPORTED TAG TYPES

NFC Tag Type	ISO Standard	Description
Type 1	ISO 14443A	Topaz
Type 2	ISO 14443A	Mifare UltraLite (NXP), NTAG 203 (NXP), My-d NFC, Myfair UltraLite C (NXP) (UID Non-encrypted portion only).
Type 3	ISO 18092	FeliCa Lite (Sony)
Type 4	ISO 14443A	Mifare DESFire EV1 (NXP) (UID Non-encrypted portion only).
Type 5	ISO 15693	iClass (UID Non encrypted portion only).
Type 6	ISO 15693	Icode SLI, Tag-it (TI)
Type 7	ISO 14443	Mifare 1K/4K, Mifare Plus 2K/4K, (UID Non-encrypted portion only).
N/A	EPC Class-1 HF/ISO 18000-3 Mode 3	

6 Device Operation

6.1.1 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. This is to ensure the 500ma current limitation of the USB host port is not exceeded. The beeper is also only activated after the barcode reader is off to ensure 500ma is not exceeded.

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 11 of 21

7 ELECTRICAL PARAMETERS

7.1 Supported Interfaces

7.1.1 Communication Interface

The HS-1R supports USB CDC COMM (USB CDC ACM) and USB HID Keyboard communications.

7.1.2 EIA RS232

The RS232 version of the HS-1R is compatible with a standard EIA RS232 levels and speeds up to 115,200 baud; an external power supply must be used with this interface. ***(Note: The RS-232 version development and validation is not complete.)***

7.1.2.1 Default RS232 Connector:

The HS-1R RS232 interface is via a RJ-45 10 Pin modular connector.
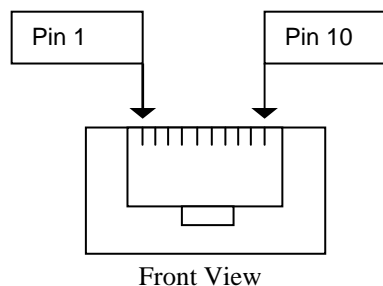
7.1.3 USB 1.1

The USB version of the HS-1R can be connected to a host USB port on a PC and is programmed to communicate with the PC in communications emulation (virtual serial port) mode.

7.1.3.1 Default USB Connector:

The HS-1R USB interface is via a RJ-45 10 Pin modular connector.

7.1.4 RJ-45 Pinout

Connector Pin Number, Definition, Orientation

Front View

RJ45 Pin Definition and Function

Pin Number	Pin Function (USB or RS-232)	Input / Output

Page 11

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 12 of 21

JADAK

1	Trigger (Low)	Input
2	USB D+	I/O
3	Optional Trigger (Not populated)	Input
4	Ground	Power
5	RXD	Input
6	TXD	Output
7	Vcc	Power
8	RTS	Output
9	CTS	Input
10	D-	I/O

7.2 Power Source

7.2.1 Operating Voltage

The HS-1R will operate over the voltage range shown in Table 2.5.1. The specified voltage is to be measured at the scanner connector input.

Table 2.5.1 - Operating Voltage Specifications

Interface	Minimum Operating Voltage	Maximum Operating Voltage
RS-232/USB	4.5 VDC	5.25 VDC

7.2.2 Operating Currents

The current draw will be less than the values listed in table 2.5.2.

Table 2.5.2 - Current Draw Limits

Interface	In-Rush Peak [3] A	Operating Peak mA	Operating[1] mA	RFID Idle[1,2] mA
USB (nom **5.0 V)**	2.0	475	450	200

[1] Average Value

[2] RFID Idle –the RFID transceiver is powered but not decoding tags.

[3] In-rush peak limit for switched power-on condition with on board power supplies starting from 0V. Plug-in or rapid power cycle (off/on in <1 minute) in-rush current limit is 500mA average at 5.0V for a duration of 1 Sec. Multiple peaks may be observed.

JADAK LLC

ISO9001:2000

Issue: 5

Document Number: DOC-0466 REV A
Authorized By:

Issue Date: 6/30/2009
Page: Page 13 of 21

JADAK

8 ENVIRONMENTAL PARAMETERS

8.1 Humidity

8.1.1 Relative humidity

8.1.1.1 **Operating: Up to 95% Non-Condensing at +55°C**

8.1.1.2 **Storage: Up to 95% Non-Condensing at +70°C**

8.2 Temperature

8.2.1 Operational

-25°C to +50°C(-13°F to +122°F) - Note that the device may function outside of this temperature range, but the parameters are not guaranteed.

8.2.2 Storage

-25°C to +70°C (-13°F to +158°F)

8.3 Ambient Illumination (verify)

The HS-1R will read all of the codes specified in the working distance requirements in ambient illumination varying from 0 Lux to 100,000 Lux (equivalent to direct sunlight incident on the bar code).

8.4 Drop

The HS-1R functions properly after being subjected to 50 drops to any face from a height of 6feet. This drop specification is without the vibration motor. If the vibration motor is included the specification of the drop height is reduced to 5 feet.

8.5 ESD Sensitivity

The product operates without corrective intervention to the following specification levels.

Test Points	ESD Level(s)
Horizontal Coupling Plane	+/- 4kV
Vertical Coupling Plane	+/- 4kV
Contact Discharge: Window, case seam and Interface connector	+/- 4kV
Air Discharge: Housing and Imager Window	+/- 8kV

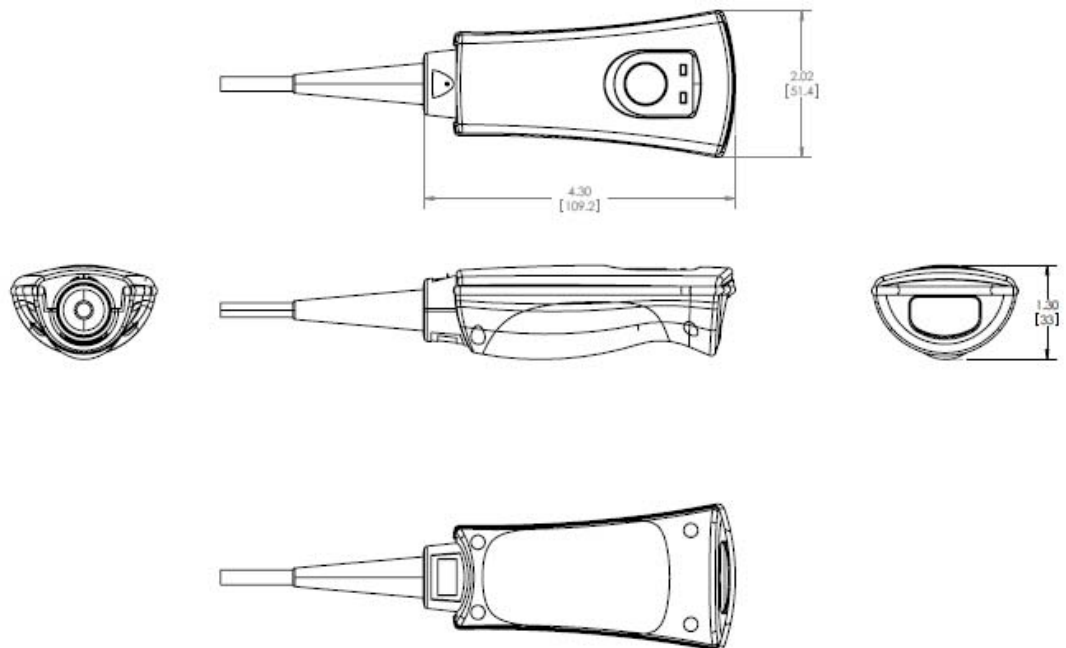## 8.6 Mean Time Between Failures (MTBF) VERIFY

The HS-1R will have a calculated MTBF greater than 70,000 hours based upon MIL-HDBK-217F release December 1, 1991. This will be done using the part count method for the Ground Benign (GB) environmental conditions.

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 14 of 21

9 MECHANICAL REQUIREMENTS

9.1 Dimensions

The housing dimensions are as shown below:

9.2 Material

Cycoloy CX2142ME, PC/ABS. Flammability rating - UL94-V0.
Versaflex OM3060-1. Flammability rating - UL94-HB.

9.3 Mounting

Mounting is via the HS-1R cradle.

9.4 Cable Requirements

The Cable supplied with the unit has the following features:
- Scanner Connection is a 10 pin Modular Connector or a micro USB type B connector.

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 15 of 21

JADAK

- Cables have internal overall shielding connected to the host connector and the device connector.
- Overall cable length:
  - o 3ft for RS-232 version (not released / tested)
  - o 9ft, coil extended, for USB 2.0 version
- Connector on host side:
  - o Shielded Dsub 9 for RS-232 version
  - o USB Type "A" plug for USB versions

9.5 Weight

The HS-1R weighs approximately 2.75 ounces (77.96 grams), excluding any host interface cabling.

9.6 Labeling

A typical product ID label has the following information:

Product Part Number and Revision
Serial Number
JADAK branding

Labeling on the mounting surfaces in the recessed areas will contain product identification information and other information mentioned above.

9.7 Packaging

The product shall be placed in individual ESD packaging.

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 HS-1R and received modular certification for this portion of the product.

10.1 FCC, IC

1. This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.
2. 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, and (2) this device must accept any interference received, including interference that may cause undesired operation

FCC Class B Compliance

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:

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 16 of 21

- o   Reorient or relocate the receiving antenna.
- o   Increase the separation between the equipment and receiver.
- o   Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- o   Consult the dealer or an experienced radio or television technician for help.

Caution: Any changes or modifications made to this HS-1R, 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 HS-1R must be shielded cables, in which the cable's shield wire(s) have been grounded (tied) to the connector shell.

Industry Canada IC Compliance

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 HS-1R
The HS-1R also contains an intentional radiator, the RFID transceiver. 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: HS1RN4
FCC ID: 2AAVI-HS1RN4
IC: 11355A- HS1RN4

JADAK LLC

ISO9001:2000

	Issue:	5
Document Number: DOC-0466 REV A	Issue Date:	6/30/2009
Authorized By:	Page:	Page 17 of 21

JADAK

10.2 CE

$C\epsilon$

The product conforms to the following EU directives:

Manufacturer	**JADAK LLC**
Address	**7279 William Barry Blvd, North Syracuse NY 13212**
Product Description	**CAT-HS1R-N4xx, Barcode / RFID Scanner, Model Number: HS1RN4**

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 harmonisation 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

JADAK LLC

ISO9001:2000

Issue: 5

Document Number: DOC-0466 REV A

Authorized By:

Issue Date: 6/30/2009

Page: Page 18 of 21

JADAK

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

10.3 Customer Support

Obtaining Technical Assistance at the Factory
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 HS-1M to be free from defects in materials and workmanship and to conform to JADAK's

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 19 of 21

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 HS-1M is for one (1) year.

10.5 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.

10.6 Maintenance

The HS-1M 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 HS-1R 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 HS-1R Housing

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5
Issue Date: 6/30/2009
Page: Page 20 of 21

JADAK

The HS-1M is IP54 rated when the cable is attached. This means that when the HS-1R was subject to the IP54 testing, liquids and dusts did 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 vs. spraying the scanner surfaces directly.

The HS-1R **housing** is compatible with the following medical grade cleaners:

Sani-Cloth® HB
Sani-Cloth® Plus
Hydrogen Peroxide
CaviWipes™
409® Glass and Surface Cleaner
Windex® Blue
Clorox® Bleach (100%)
Isopropyl Alcohol
Gentle dish soap and water

Cleaning the HS-1R host interface cable
The HS-1R interface **cable** is compatible with the following cleaners with the cautions noted:

Not compatible: CaviWipes – The secondary ingredient in this cleaner is harmful to PVC a main component of the cable jacket.

Use With Caution: Hibiclens
        Phenolic 256 DC
        Professional Amphyl Hospital Bulk Disinfectant Cleaner
        Virkon
        Wexcide
        Wexcide-Ready-To-Use

Probably OK: Compublend II
        Dispatch
        LpH Disinfectant Cleaner
        Maxima 128
        Metrizyme
        Staph-Attack
        Super Sani-Cloth
        Thymocide
        Hand Sanitizer with 65% ethyl alcohol (But what are the other ingredients?)
        Sani-Cloth HB
        Sani-Cloth Plus
        Sani-Cloth

OK for Use: 10% Bleach
        70% Isopropyl Alcohol
        Aseptizyme
        Clorox Wipes
        Detergezyme
        Mild Detergent
        Commercial Clorox Germicidal Wipes
        Hydrogen peroxide
        409 Glass Cleaner
        Windex Blue

JADAK LLC

ISO9001:2000

Document Number: DOC-0466 REV A
Authorized By:

Issue: 5

Issue Date: 6/30/2009
Page: Page 21 of 21

JADAK

100% Clorox Bleach

As in all chemical resistance cases, duration and frequency of contact will have a major role on the amount of stiffening encountered over the lifetime of the product. The chemicals we have classified as Use With Caution have ingredients known to extract plasticizers from PVC compounds or do other damage, but we have no experience with them at the concentrations in these cleaners. Probably OK means we believe the chemicals to be relatively benign at the concentrations listed, but have no test experience. Those OK to Use contain chemicals we are familiar with and have some previous test data leading us to believe they will impart little harm if used only as an occasional wipe down.

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.