

Hewlett-Packard SmartWand Bar Code Reader

Technical Data

HBSW-8000 Series Polycarbonate or Metal Housing

Features

- Automatically Decodes 9 Bar Code Symbologies
 - Code 39 Standard or Extended

Int. 2 of 5
 UPC A, E
 Code 128
 EAN 8, 13
 Code 11
 MSI Code
 Code 93

- LED Feedback
- Low Current Draw
- Programmable Either by Bar Code Labels or by Escape Sequences
- Configuration Stored in Non-Volatile Memory
- CMOS/TTL Interface
 - Output 0 to 5 volts
 - Input up to \pm 15 volts
- Manufacturing ISO 9002 Certified
- Full One Year Warranty

Description

The Hewlett-Packard SmartWand Bar Code Reader is a bar code scanning wand with an integrated decoder. It transmits data to a computer via an asynchronous serial port, using CMOS level signals, at user definable baud rates. The SmartWand Reader's configuration may be changed by scanning special bar code menus, or by sending escape sequences to the wand from the host. The



configuration is stored in non-volatile memory, allowing the SmartWand Reader to retain the configuration when the power is turned off. A Configuration Display option sends a summary of the configured options to the screen.

In its default configuration, the SmartWand Reader can automatically recognize and decode 9 standard bar code symbologies. Configurable options include: symbology selection, checksum verification, length checking, message editing, LED feedback control, Code 39 digital wand emulation mode, serial port configuration, and various I/O protocols such as single read modes, Xon/Xoff pacing and no-read recognition.

The polycarbonate-cased SmartWand Readers (HBSW-8000,8200,8400) have an LED near the tip that flashes after a good read. The LED also flashes during bar code menu programming and to signal any self-test failures after power-up.

All SmartWand Readers have an enhanced software version of Hewlett-Packard's proven decoding algorithm. The SmartWands are also very suitable for portable computer or terminal applications due to its low current draw.

Visual Feedback LED

The SmartWand Readers with polycarbonate-cases have an easy-to-see Feedback LED near the scanner tip that acknowledges a good read. This is useful in a noisy environment or where silence is required. Since the state of the LED can be controlled by escape sequences, the host processor can turn the LED on or off at any time.

SmartWand Reader Configuration

The SmartWand Reader can be configured by scanning special bar code labels or by receiving escape sequence commands from the host. This allows decoding options and interface protocols to be tailored to a specific application. Configuration labels and a list of escape sequences are printed in the SmartWand User's Manual (P/N: HBSW-8997). The SmartWand Reader can display its current configuration on the host's screen. See sample.

Programmable Features

Bar code selection and decoding options
Check character verification and transmission
Serial port parameters and I/O protocols
Message editing
Header and terminators
LED operator feedback
Label length checking
No Read recognition
Digital wand Code 39 emulation

Wand Specifications

Scan Speed 7.6 to 127 cm/s
(3 to 50 in/s)
Tilt Angle 5° to 40°
Minimum Contrast 45%
ColorBlack
Wand Diameter 23 mm (0.9 in)
Wand Length 160 mm (6.3 in)
Weight:
Aluminum 153 g (5.4 oz)
Polycarbonate 140 g (4.9 oz)
Tip Sapphire

Environmental

Temperature:

Operating:

-20°C to 70°C (-4°F to 158°F) Storage:

-40°C to 70°C (-40°F to 158°F)

Humidity (Non condensing):

Humidity (Non-condensing): 95% at 40°C (104°F) max.

Ambient Light:

100,000 lux (maximum)

Rain

MIL-STD-810, Method 506, Procedure II (Polycarbonate)

Dust:

MIL-STD-810, Method 510

Shock:

Ten drops to sealed concrete (random orientation) from 1.2 m (4 ft)

Configuration Display

CONFIGURATION DISPLAY

Vers	ion 12	.5				(с) Hewlett-Packard 1986-1992
CODE	READ	CHECK	CHAR	LEN	IGTH	CODE ID	OTHER CONFIG. SETTINGS
i	i	verif	_xmit_	min	_max	xmit:[off]	
Code 39	[yes]	[no]	yes	[1]	[32]	[a]	Extended: [no]
Int. 2/5							Length: [variable]
Codabar					[32]		Include start/stop: [yes]
Code 128		:	:	2 .	[32]	[e]	į l
Code 11	[yes]	[1]	yes	[2]	[32]	[f]	j l
MSI Code	[yes]	yes	yes	[3]	[32]	[g]	
Code 93	[yes]	yes	no	[1]	[32]	l [h]	
UPC/EAN	[yes]	yes	yes	fi)	red	[c]	[+ none]
E:[0]	İ	i	İ	ĺ			EAN: [yes] ID chars: [off]
MESS	AGE CO	MPONEN'	TS (co	ntro	l cha	racter = ^	+ letter)
Header:[3		ı		- [1	No-read: []	
Trailer:	Trailer:[^M^J] Message Ready:[^F]						
Reader A	Reader Address:[] Message Not Ready:[^U]						
SERIAL PORT PACING MISCELLANEOUS							
Baud Rate: [9600] XON/XOFF Protocol: [off] No-Read Recognition: [off]							
Parity: [0's] Single Read Mode: [off] Scanner: [enabled]							
	Stop Bits:[1] FEEDBACK: [on] Buffering: [None]						
[20ms]De	lay:[o	ff] [L	ED:[fl	ashe	s] Ac	tive:[high]	ROM/RAM Self Test:[off]

All items within the square brackets [] are configurable.

Electrical Interface

V _{CC} Limits (V)	Min.	Max.
Operating	4.5	6.0
Absolute Rating	-0.3	6.0
Supply Ripple	100 mV pe	ak to peak

Typical Current Draw - I_{CC} (mA)

	$\mathbf{v}_{\mathbf{cc}}$		
Mode	4.5	5.0	6.0
Idle	8	9	12
Scanning	16	18	24
With LED on	25	29	38

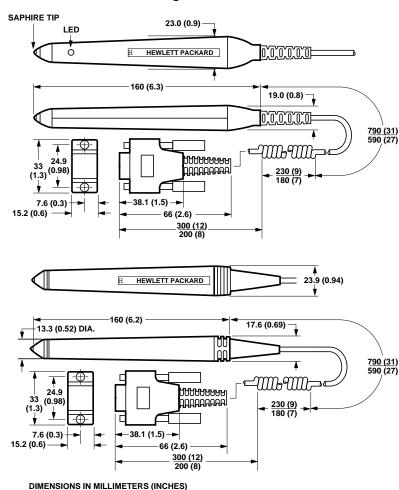
FCC Certification

HP's SmartWand Readers have received FCC certification for their standard configuration only. Any customer purchasing the product with stripped and tinned leads or a connector without adequate shielding has the responsibility to comply with FCC regulations. Moreover, if the HP SmartWand Reader is purchased without a connector, the product becomes defined as a subassembly and the FCC Identification number no longer applies. HP assumes no responsibility or liability for users of the HP SmartWand Readers without connectors that fail to comply with FCC regulations.

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. 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.

Model	FCC Identification
HBSW-8XXX Series	FCC ID: B94KDRZ

General Mechanical Specifications





The CE Mark demonstrates compliance with EC directives on EMC.

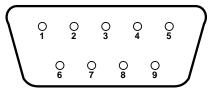
Connector

The standard connector is a 9 pin male D connector. There is also an option for the cable to have stripped and tinned wires.

Pin Diagram

Pin #	Wire Color	Function
1	-	N/C
2	White	TxD Transmitted Data (from the Reader)
3	Green	RxD Received Data (to the Reader)
4, 5, 6	-	N/C
7	Black	Ground
8	-	N/C
9	Red	$V_{\rm cc}$
Shell	Braid	Shield

Shield and ground are tied together in the connector.



MALE 9 PIN SUBMINIATURE D CONNECTOR

Pin Description

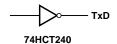
Pin 2 TxD - The data output signal TxD obeys standard serial asynchronous data formats, but uses zero to five volts CMOS logic levels. It can be described as CMOS level RS-232. The TxD output circuit is shown in the figure below. It will drive TTL, LSTTL, CMOS, HC, and HCT inputs.

TxD Output Specifications

$$(V_{CC} = 4.5 \text{ V}, T_A = 25^{\circ}\text{C})$$

	Min.	Max.
V _{OH}	4.4 V @ 20 μA 3.8 V @ 6 mA	
V_{OL}		0.10 V @ -20 μA 0.33 V @ -6 mA
I_{OL}		35 mA

TxD Circuit



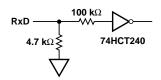
Pin 3 RxD - The received data signal RxD expects the standard asynchronous serial data format. It will accept either CMOS level or true RS-232 level signals. The figure below shows the equivalent input circuit.

RxD Input Specifications

$$(V_{CC} = 5.0 \text{ V}, T_A = 25^{\circ}\text{C})$$

$ m V_{IH}$	2.0 V 500 μΑ
$ m V_{IL}$	0.8 V @ 1 μA

RxD Circuit



Note: If the part is purchased with stripped and tinned wires, or if the connector is removed, the ground and shield wires must be connected together for proper operation.

Ordering Information

Part Number	Housing	Resolution	LED Wavelength
HBSW-8000*	Polycarbonate	Low –	655 nm
HBSW-8100*	Metal	0.33 mm (0.013 in)	
HBSW-8200	Polycarbonate	Medium –	655 nm
HBSW-8300	Metal	0.19 mm (0.0075 in)	
HBSW-8400*	Polycarbonate	High –	820 nm
HBSW-8500*	Metal	0.13 mm (0.005 in)	

^{*} Low and High Resolution SmartWand Readers are built to order devices.

SmartWand Kits

HBSW-8205 - Polycarbonate SmartWand Kit

Includes: HBSW-8200 General Purpose Reader

HBSW-8997 User's Manual HBCS-2998 Black Wand Holder

HBSW-8305 - Metal SmartWand Kit

Includes: HBSW-8300 General Purpose Reader

HBSW-8997 User's Manual HBCS-2998 Black Wand Holder

SmartWand Accessory Part Numbers

HBSW-8997	User's Manual
HBCS-2998	Wand Holder (black polycarbonate)
HBSW-8991	Replacement Polycarbonate Case with LED Window
	and Tip
HBCS-4999	Replacement Tip for Metal Case
HBCS-A990	Plastic Case Replacement Tool

Warranty and Service

The Hewlett-Packard SmartWand Bar Code Reader is warranted for a period of one year from date of purchase covering defects in material and workmanship. Hewlett-Packard will repair or, at its option, replace products that prove to be defective in material or workmanship under proper use during the warranty period.

HEWLETT-PACKARD MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.