



Note: HS814 featured above shown with the PC2420 Hand-Held Terminal.

# HS814 / HS816 Portable Reader/Writers

## Features

- 3000 Bytes/Second Data Transfer Speed – Reading and Writing
- Epoxy Encapsulated
- Unaffected by Paint, Dust, Dirt and Solvents
- Uses Safe, Reliable Low-Frequency Radio Waves
- Automatic Program Start-Up

## Applications

- Material Handling
- Sortation Systems
- Work-in-Progress Monitoring
- Quality Control

## Use With

- HS200R-Series Tags
- HS200XL-Series Tags
- HS200LR-Series Tags

**EMS**, a Datalogic Group Company, is the field-proven leader in the development and application of Radio Frequency Identification (RFID) Tags/Labels/PCBs, Antennas, Controllers and network interface modules for tough industrial environments. With over a dozen years of RFID successes in the automotive, electronics, material handling and food processing industries, EMS has built a global reputation in providing customers with complete supply chain solutions – from production to retail EMS has the complete solution!

EMS has recently teamed up with Intermec to launch an exciting new product line of Portable Reader/Writers. Escort Memory Systems' Read/Write Antenna, the HS814, can be plugged into Intermec's PC2420-Series Hand-Held Terminals (PC2420 and PC2425) to provide portable Read/Write capabilities. For added flexibility, Escort Memory Systems also offers the HS816 Reader/Writer, which provides a direct host interface (e.g. laptop, palmtop).

The HS814 Portable Reader/Writer is a fully encapsulated wand housed in an industrial enclosure and has a cushioned exterior for comfort and shock resistance. The HS814 plugs into the Intermec Hand-Held Terminal to allow for portable Reading and Writing to the HS-Series Tags. The HS814 is powered by the Terminal.

The HS816 Portable Reader/Writer is unique

from the HS814 in that it interfaces to the host (e.g. laptop, palmtop) via an RS232 serial port. The HS816 uses an external power supply, and it features the same rugged characteristics of the HS814. Included with the HS816 Reader/Writer is a complete user software guide and a disk with demonstration programs.

**ACTIVE  
READER/  
WRITERS  
ARE NOW  
PORTABLE**

Intermec offers two Terminals to interface with Escort Memory Systems' Reader/Writers – the PC2420 and the PC2425. The PC2420 is a powerful micro-computer which features a CGA compatible back-lit LCD displaying 16 lines of 20 characters per line. The PC2420 also has a full alpha-numeric keypad, long battery life, and a rugged design suitable for use in industrial environments. The PC2425 Terminal shares all the above characteristics as the PC2420 but also provides the added benefit of an RF link to the host.

## Technical Description

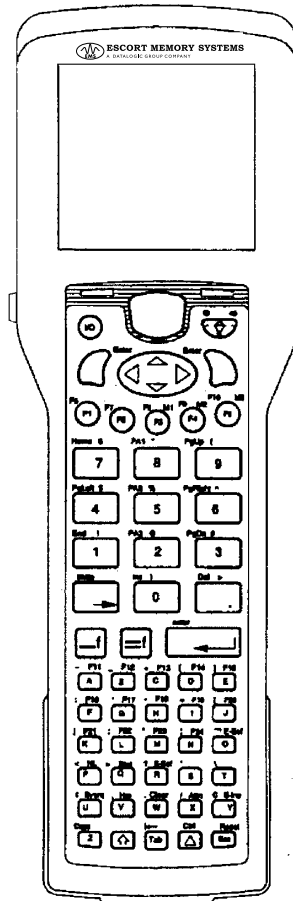
The HS814 / HS816 Portable Reader/Writers contains their own microprocessor and memory subsystems to manage communication with the HS-Series Tags. Communication between the PC2420 (or PC2425) Terminal and the HS814 is in serial asynchronous form.

# HS814 / HS816 Portable Reader/Writers

## PC2420-Series Hand-Held Terminals

Electrical	Supply Voltage	Lithium Ion Battery Pack
	Memory Backup	Rechargeable NiCad Battery Pack
	RAM Memory	1MB Total, 512K Available
	Extended Memory	2MB SRAM
Mechanical Specifications	Dimensions (W x H x D)	10.6 x 3.2 x 2.8in. (269 x 82 x 71 mm)
	Weight	22oz. (620g) Including Battery
Environment	Operating Temperature	-4° to 120°F (-20° to 49°C)
	Storage Temperature	-4° to 140°F (-20° to 60°C)
	Humidity	95% Non-Condensing
Display	CGA Compatible Backlit LCD Displaying 16 Lines of 20 Characters Per Line (160 x 128 dot matrix). Plus Graphic Status Icons. Full 25 x 80 Virtual Screen with Viewporting.	
Keyboard	Elastomeric 56-key with Full Alphanumeric Set, Function Keys and Oversized Numeric. Options for U.S. and Multilingual European.	

## PC2420-Series Hand-Held Terminals



# HS814 / HS816 Portable Reader/Writers

## HS814 Portable Reader/Writer

<b>Electrical</b>	Supply Voltage Current	7.2VDC 100mA Continuous 400mA Peak
<b>RF Interface</b>	Data Transfer Rate Error Detection Antenna Type	3000 Bytes/Second CRC and Parity Check Internal
<b>Interface</b>	Serial Host Interface Baud Rate Connector	TTL 9600 RJ45 - 10 Pin for PC2420
<b>Mechanical Specifications</b>	Cable Length Antenna Body (L x W)	6ft. 8.25 x 1.22in. (210 x 31mm)
<b>Environment</b>	Operating Temperature Storage Temperature Humidity Protection Class	32° to 120°F (0° to 49°C) -4° to 158°F (-20° to 70°C) 95% Non-Condensing NEMA 4 (IP66)

## HS816 Portable Reader/Writer

<b>Electrical</b>	Supply Voltage Current	12VDC 100mA Continuous 400mA Peak
<b>Interface</b>	Serial Host Interface Baud Rates Connector	RS232 9600, 19200 DE9S with DC Power Jack
<b>Mechanical Specifications</b>	Cable Length Antenna Body (L x W)	6ft. 8.25 x 1.22in. (210 x 31mm)
<b>Environment</b>	Operating Temperature Storage Temperature Humidity Protection Class	32° to 120°F (0° to 49°C) -4° to 158°F (-20° to 70°C) 95% Non-Condensing NEMA 4 (IP66)

# HS814 / HS816 Portable Reader/Writers and PC2000-Series Hand-Held Terminals

## Read/Write Ranges

### HS814 / HS816 Portable Reader/Writers

#### Reading & Writing Ranges with HS200-Series Read/Write Tags

	HS200R	HS200XL	HS200LR
Typical Range (Y) (inches/mm)*	1.77/45	1.77/45	1.77/45
Guaranteed Operating Range (X)	1.42/36	1.42/36	1.42/36

\* Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.

## Available Models

Model	Description
HS814	Portable RF Reader/Writer (Use with PC2420-Series Hand-Held Terminals)
HS816	Portable RF Reader/Writer Wand with RS232 Interface (Note: HS814 will require a Hand-Held Terminal, a Battery and Battery Charger. See Accessories below.)
HS814 J004	Portable Reader/Writer Kit Includes: HS814 Read/Write Antenna, PC2420 Hand-Held Terminal, 00-1099 Battery and 00-1102 Battery Charger

## Accessories – PC2420

Model	Description
PC2420	Hand-Held PC Terminal
PC2425	Hand-Held PC Terminal with RF Link
00-1099	Battery, PC2420 7.2V, 1350mAh
*00-1100	Comm. Dock/Charger, PC2420 (Note: Requires CBL-1443 or CBL-1444 Cables and 00-1101 Power Supply)
*00-1101	Power Supply for 00-1100
00-1102	Battery Charger for Two Batteries 00-1099
*00-1111	Software Microsoft Visual C++ V1.52
00-1112	Hand Strap for PC2420
*00-1113	Software Development Kit PC2420 (Note: Requires Visual C/C++ V1.0 or V1.5X or V4.X)
*CBL-1443	RS232 Cable, DE9S to DE9S, Null Modem, 5-Wire
*CBL-1444	RS232 Cable, DE9S to DB25P, Null Modem, 3-Wire
17-1265	Manual, PC2420/25

\* Recommended Accessories for Development of Custom PC2420 Applications

## European – See page 209 for Read/Write Ranges

HL814	Portable RF Reader/Writer (Use with PC2420-Series Hand-Held Terminals)
HL816	Portable RF Reader/Writer Wand with RS232 Interface
HL814 J026	Portable Reader/Writer Kit Includes: HL814 Reader/Writer, PC2420 Hand-Held Terminal, 00-1099 Battery and 00-1102 Battery Charger

**Active Read/Write Radio Frequency Identification (RFID)  
Typical & Guaranteed Read/Write Ranges**

(inches/mm)\*

Antennas	Tags			
	HS200R-Series	HS200XL-Series	HS200LR-Series	
<b>HS500(A)</b>	Typ.	5.91/150	5.71/145	18.70/475
	Guar.	4.72/120	4.57/116	15.00/380
<b>HS501(A)</b>	Typ.	5.00/127	5.00/127	13.00/330
	Guar.	4.02/102	4.02/102	10.40/264
<b>HS510</b>	Typ.	**	**	2.00-29.00/50-737
	Guar.	**	**	2.00-23.23/50-590
<b>HS550A</b>	Typ.	4.49/114	5.90/150	16.50/420
	Guar.	3.58/91	4.72/120	13.20/335
<b>HS814</b>	Typ.	1.77/45	1.77/45	1.77/45
	Guar.	1.42/36	1.42/36	1.42/36
<b>HS816</b>	Typ.	1.77/45	1.77/45	1.77/45
	Guar.	1.42/36	1.42/36	1.42/36

\*Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.

\*\*Not recommended

**Active Read/Write Radio Frequency Identification (RFID) – European  
Typical & Guaranteed Read/Write Ranges**

(inches/mm)\*

Antennas	Tags		
	HL200R-Series	HL200XL-Series	
<b>HL500(A)</b>	Typ.	3.74/95	3.90/100
	Guar.	2.99/76	3.15/80
<b>HL501(A)</b>	Typ.	3.70/94	3.70/94
	Guar.	2.96/75	2.96/75
<b>HL814</b>	Typ.	0.47/12	0.47/12
	Guar.	0.39/10	0.39/10
<b>HL816</b>	Typ.	0.47/12	0.47/12
	Guar.	0.39/10	0.39/10

\*Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.