

SEPTEMBER 1983

Models 39800A/39801A



Features

- **Three industrial bar codes standard:**
 - 3 of 9 code
 - Interleaved 2 of 5 code
 - Industrial 2 of 5 code
- **Automatic code recognition**
- **Optional bar codes available**
 - UPC/EAN/JAN
 - Codabar
 - Others
- **Flexible dual RS-232-C (V.24) data communications**
 - Facilitates a wide variety of configurations
- **Programmable operation (39800A only):**
 - Two LED status indicators
 - Beeper control
 - Code selection
 - Data communication configuration
 - Reader operational status
- **High performance digital wands:**
 - 45 degree scan angle
 - Replaceable, sealed, sapphire tip
 - Rugged case
- **Integral power supply**
- **Tabletop or wall mountable**
- **Built-in selftest**
- **Worldwide HP service**

Description

The 39800A and 39801A are high performance bar code readers. The 39800A includes a wide range of programmable features which allow the reader to be fully integrated into sophisticated data entry systems. The 39801A is non-programmable, providing a more cost-effective solution for applications which do not require programmability.

The standard reader supports three popular industrial bar codes: 3 of 9 code, Interleaved 2 of 5 code, and Industrial 2 of 5 code. If more than one standard code is enabled, the reader will automatically recognize which code is being read. Options are available for reading UPC/EAN/JAN codes, Codabar code, and other bar codes. Bidirectional scanning is provided for all bar codes supported.

The 39800A and 39801A may be configured with a wide range of computer systems; including minicomputers, desktop computers, and personal computers. Dual RS-232-C (V.24) ports facilitate operation in both stand-alone and eavesdrop configurations. In an eavesdrop configuration, the reader will generally be operated in conjunction with an RS-232-C terminal.

Interactive systems design is supported in the 39800A through programmable operator feedback and reader control features. A multi-tone beeper and two LED indicators are provided to allow simple, yet flexible audio and visual programmable feedback. Local operator feedback is provided in the 39801A through a beeper which sounds to signify a good read.

Reader performance can be optimized by selecting the wand appropriate for the type of symbol being read. The wands offer a 45 degree scan angle, a rugged case, and a sealed sapphire tip. The sapphire tip may be replaced by the user if it is damaged.

Applications

Bar codes offer a method of entering data into computers which is fast, accurate, reliable, and which requires little operator training. Implementation of a bar code system can lead to increased productivity, reduced inventory costs, improved accountability, increased asset visibility, and reduced paperwork. Customer satisfaction will also improve as a result of improved quality control, reduced shipping errors, and reduced order and ship times. On-line, real-time interactive systems will allow the user to take full advantage of the contributions offered by bar code systems. The 39800A and 39801A provide a high performance solution for applications which require on-line bar code data entry.

The most common type of data stored in bar code is item identification information used in a wide range of applications such as:

- Inventory Control
- Work-in-Process Tracking
- Distribution Tracking
- Order Processing
- Records Management
- Point-of-Sale
- Government Packaging and Shipping

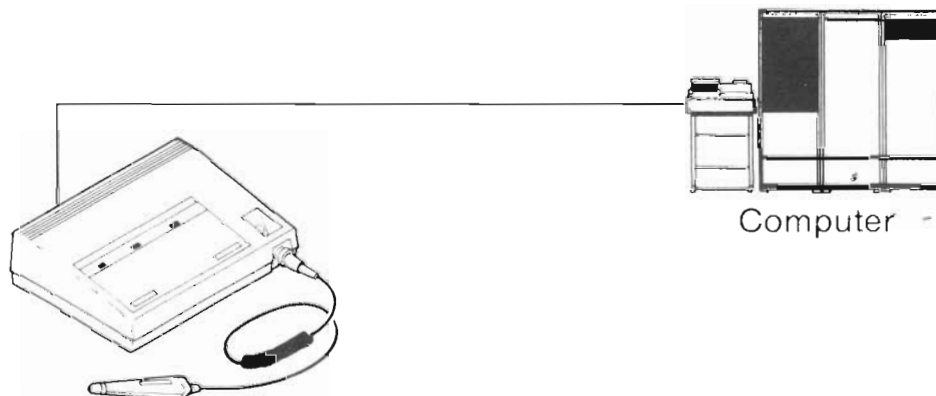
Bar codes can also be used in applications where information about an item or a transaction must be accurately entered into the host computer. Item location, employee identification, work steps, equipment settings, equipment status, and inspection results are some of the types of information which can be entered using bar codes.



Typical configuration

The dual RS-232-C (V.24) output provided by the 39800A and 39801A allows a single reader to be configured in a wide range of on-line applications. Three typical system configurations are outlined below:

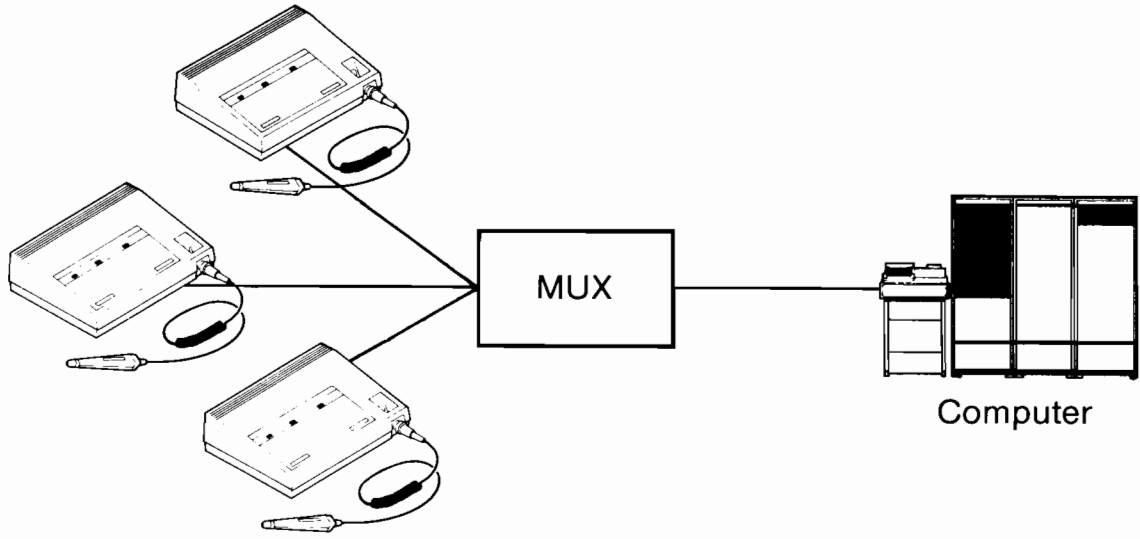
- **Stand-Alone Reader** — The 39800A/39801A is in direct communication with the host minicomputer, desktop computer, or personal computer.



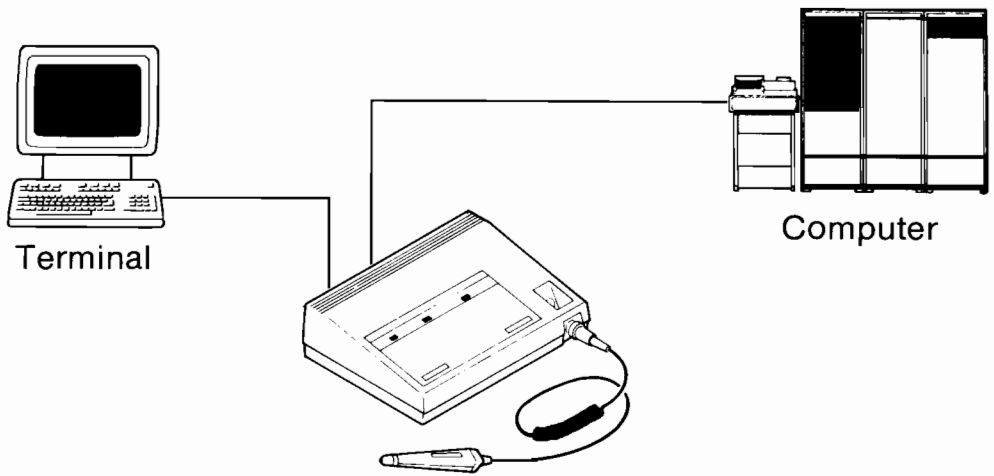
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- **Multiplexed** — A cluster of 39800A/39801As communicates with the host computer through a multiplexer. Where the advantages of fiber optic data communications are desired, the Hewlett-Packard 39301A Fiber Optic Multiplexer can be used.



- **Eavesdrop** — The 39800A/39801A is in an eavesdrop configuration between an RS-232-C terminal and the host computer. The reader can be configured to transmit to the computer, to the terminal, or to both simultaneously.



Wand selection

The 39800A and 39801A bar code readers include a 16830A digital bar code wand which is capable of reading bar code symbols which have nominal narrow bar/space widths of 0.19 mm (0.0075 in.) or greater. This includes a wide range of high, medium, and low resolution bar codes including standard 3 of 9 code [0.19 mm (0.0075 in.)].

An optional 16832A digital bar code wand is available for very high resolution codes with nominal narrow bar/space widths of 0.13 mm (0.005 in.) to 0.20 mm (0.008 in.). This wand is not recommended for dot matrix printed bar codes.

Both wands are also available under accessory product numbers.

Code selection

The 39800A and 39801A offer user flexibility in the implementation of the three standard bar codes:

- Single Code Selection or Automatic Code Recognition (any combination of the three standard codes)
- Checksum Verification Selectable *
- Variable Message Length up to 32 characters
- Selectable Message Length Check (Interleaved 2 of 5 code and Industrial 2 of 5 code)
- Any specified code resolution

Optional bar codes will also provide a high degree of user flexibility. The code reading configuration is switch selectable. Additional information on bar code symbologies is available in the Operating and Installation Manual and in Application Note 1013 — "Elements of a Bar Code System".

39800A Additional Capabilities

The 39800A offers the advantage of programmable control over all aspects of the code reading configuration. This capability enables the applications software to determine what code can be read depending on the type of data to be entered. For example, the 3 of 9 code could be enabled for entering item identification information and then the 3 of 9 code disabled and Interleaved 2 of 5 code enabled for entering a different type of data such as employee identification or job status. This allows different bar codes to be used in the system while at the same time preventing the operator from entering the wrong type of data into the data base.

Data communications

The 39800A and 39801A provide a flexible dual RS-232-C (V.24) serial ASCII data communications capability which can support a wide range of system configurations. The reader offers the user the choice of full or half duplex transmission when in character mode and, if in an eavesdrop configuration with a terminal, the reader can also be operated in block mode. The user can tailor the reader's data communication configuration to the application by selecting the appropriate transmission mode (full/half duplex), operating mode (character/block mode), data rate, parity, terminator, stop bits, and inter-character delay on the readily accessible DIP switches. Request to Send/Clear to Send, DC1/DC3 (XON/XOFF), and DC1 Trigger traffic control is available.

39800A Additional Capabilities

The 39800A offers expanded data communications capabilities with the added benefit of programmable control. In addition to programmable control of the transmission mode (full/half duplex) and the operating mode (character/block mode), the 39800A provides the following programmable features:

- User-definable header (up to 10 characters)
- User-definable terminator (up to 10 characters)
- DC1/DC3 (XON/XOFF) traffic control enable/disable
- DC1 Trigger traffic control enable/disable



Operator feedback

The 39800A and 39801A provide good read feedback to the operator by sounding an integral beeper. Beeper volume can be adjusted as appropriate for the application.

39800A Additional Capabilities

Interactive operator feedback is provided in the 39800A through two programmable LED indicators and programmable beeper control. The user has programmable control over operator feedback as follows:

- Local good read beep enable/disable
- Local good read beep tone (16 tones available)
- Computer commanded beep (16 tones available)
- Red LED Indicator on/off
- Green LED Indicator on/off

Programmable operator feedback can be used to prompt the operator, to signify that data has been validated by the computer, to differentiate between different workstations in close proximity, to provide additional LED feedback in extremely noisy environments, or for a variety of other reasons.

Reader control and status (39800A only)

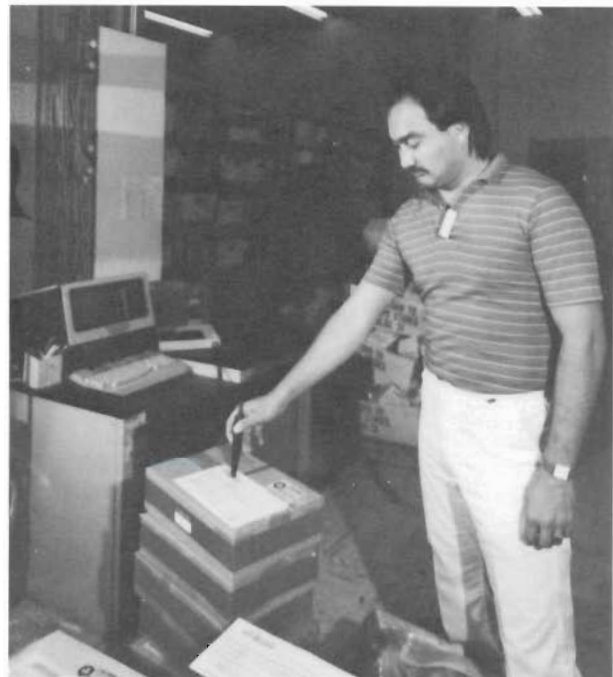
The 39800A provides the user with added programmable control over the reader's operation and also enables the user to obtain on-line status information regarding the reader's configuration and functionality. The programmable control and status features are described below:

Scanner Enable/Disable — When disabled, further bar code scans are ignored.

Single Read Enable/Disable — When enabled, a single bar code scan can be entered between "Next Read" commands.

Hard Reset — Commands the reader to return to the operating configuration prescribed by the DIP switch settings. An automatic self-test is also executed.

Status Request — Commands the reader to send the status of its operating configuration to the computer.



Specifications

General

Typical Wand Reading Characteristics:

Parameter	Units	16830A (Standard)	16832A (Option 320)
Minimum Recommended Nominal Narrow Element Width	mm in.	0.190 0.0075	0.127 0.005
Tilt Angle	degrees	0-45	0-45
Scan Speed	cm/sec in./sec	7.6-76 3-30	7.6-76 3-30
Wavelength	nm	700	820

Bar Codes Supported:

Standard: 3 of 9 Code (USD-3; MIL-STD-1189)
Interleaved 2 of 5 Code (USD-1)
Industrial 2 of 5 Code

Optional: UPC/EAN/JAN (Option 001)
Codabar (Option 002)
Others (Contact factory)

Data communications

Data Rate:	110, 300, 600, 1200, 2400, 4800, 9600 baud. Switch Selectable.
Parity:	0's, 1's, Odd, Even. Switch Selectable.
Terminator:	CR, CR/LF, Horizontal Tab (HT), None. Switch Selectable.
Programmable Header/Terminator (39800A only):	User defined. Maximum of 10 characters each.
Stop Bits:	1 or 2. Switch Selectable.
Inter-Character Delay:	30 ms or None. Switch Selectable.
Standard Asynchronous Communications Interface:	EIA Standard RS-232-C (CCITT V.24)
Transmission Modes:	Full or half duplex, asynchronous. Switch selectable. Programmable in 39800A.
Operating Modes:	Character or Block Mode. Switch selectable. Programmable in 39800A.
Traffic Control:	Request to Send/Clear to Send. DC1/DC3 (XON/XOFF) or DC1 Trigger. Switch Selectable. Programmable in 39800A.
Output Buffer:	255 Characters

Environmental conditions

Temperature, Free Space Ambient:

Non-Operating: -40 to 75°C (-40 to +167°F)
Operating: 0 to +55°C (+32 to 131°F)

Humidity: 5 to 95% (non-condensing)

Altitude:

Non-Operating: Sea level to 15300 metres (50,000 feet)
Operating: Sea level to 4600 metres (15,000 feet)

Vibration: 0.38 mm (0.015 in.) p-p, 5 to 55 to 5 Hz, 3 axis

Shock: 30g, 11 ms, 1/2 sine

Physical specifications

Weight, including wand: 2.0 kg (4.4 pounds)

Weight, wand only: 0.18 kg (0.4 pounds)

Reader Dimensions: 260 mmW x 189 mmD X 71 mmH (10.25 in.W x 7.4 in.D x 2.8 in.H)

Wand Dimensions: 132 mmW x 23 mmD X 20 mmH (5.2 in.W x 0.9 in.D x 0.8 in.H)

Wand Cord Length: 71 cm (28 in.) — retracted
183 cm (72 in.) — extended

Power requirements

Input Voltage: 100V (+5%, -10%) at 48-66 Hz (Opt. 210)
120V (+5%, -10%) at 48-66 Hz (Standard)
220V (+5%, -10%) at 48-66 Hz (Opt. 222)
240V (+5%, -10%) at 48-66 Hz (Opt. 224)

Power Consumption: 20 VA maximum



Regulatory agency approvals

RFI/EMI:

- VDE 0871 level B
- FCC Class B

Safety Approvals:

- UL478, UL114 for EDP and office equipment
- CSA C22.2-154 for EDP equipment
- VDE 0730 part 2P for EDP and office equipment
- Complies with IEC standard #380 and #435 for EDP and office equipment

Installation

All product preparation and installation can be performed by the owner/user. Refer to the Operating and Installation Manual supplied with the unit for detailed instructions.

Supporting literature

For further information refer to:

39800A/39801A Option 001 Data Sheet, Publication Number 5953-9376 (Available through local sales office)

39800A/39801A Option 002 Data Sheet, Publication Number 5953-9377 (Available through local sales office)

39800A/39801A Operating and Installation Manual, P/N: 39800-90001

39800A/39801A Option 001 Operating and Installation Manual Addendum, P/N: 39800-90004

39800A/39801A Option 002 Operating and Installation Manual Addendum, P/N: 39800-90006

Application Note 1013, "Elements of a Bar Code System", Publication Number: 5953-7732 (Available through local sales office)

Application Bulletin 66, "HP39800A/39801A Bar Code Reader Configuration Guide for HP Series 200 Computers", Publication Number: 5953-9373 (Available through local sales office)

Application Bulletin 67, "HP39800A/39801A Bar Code Reader Configuration Guide for HP Series 80 Personal Computers", Publication Number: 5953-9374 (Available through local sales office)

"Reading Bar Code with the HP-75C and the HP39800A", Publication Number: 5953-5538 (Available through local sales office)

Ordering information

PRODUCT NUMBER	DESCRIPTION
39800A	PROGRAMMABLE BAR CODE READER Includes 16830A digital wand, internal power supply for 120V line voltage, power cord, and Operating and Installation Manual. Reader supports 3 of 9 Code, Interleaved 2 of 5 Code, and Industrial 2 of 5 Code.
39801A	BAR CODE READER Includes 16830A digital wand, internal power supply for 120V line voltage, power cord, and Operating and Installation Manual. Reader supports 3 of 9 Code, Interleaved 2 of 5 Code, and Industrial 2 of 5 Code.
-001	Add UPC/EAN/JAN code reading capability; Delete Industrial 2 of 5 code
-002	Add Codabar code reading capability; Delete Industrial 2 of 5 code
-210	100V power supply
-222	220V power supply
-224	240V power supply
-320	Delete 16830A digital wand; Add 16832A digital wand
-610	Add Wall Mounting Kit
-910	Additional Operating and Installation Manual
ACCESSORIES	
16800-60830	16830A Standard Digital Bar Code Wand
16800-60832	16832A High Resolution Digital Bar Code Wand
16800-60010	Replacement Sapphire Wand Tip
16800-61000	Wall Mount Kit
03075-40006	External Wand Holder
8120-3258	2.3 metres (9 feet) Male-Male RS-232-C cable. Shielded.
LITERATURE	
39800-90001	Operating and Installation Manual
39800-90004	Option 001 Operating and Installation Manual Addendum
39800-90006	Option 002 Operating and Installation Manual Addendum

