SnapShot™

Bar Code
Laser Scanners

User's Guide for Decoded Models

PERCON

Percon SnapShot™ User's Guide
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About the Percon SnapShot

FIGURE 1-1
The Percon SnapShot

The Percon SnapShot™ is a lightweight yet rugged bar code scanner (see figure 1-1). It is available in decoded and undecoded models. Decoded models can be connected to any supported PC or terminal as either a keyboard wedge or a serial device. Undecoded models must be used with Percon PowerWedge™ fixed-station decoders (or similar decoders) or with portable data-collection terminals (such as the Percon PT 2000™).

A red light-emitting diode (LED) on the top indicates when the SnapShot is scanning, and a green LED indicates when a scan is successful (see figure 1-2). The decoded models also emit a beep each time a bar code is scanned successfully. You can change the beeper's volume, pitch, and duration to suit your work environment or your personal preferences.

FIGURE 1-2
LEDs

An optional stand is available for the SnapShot. The stand lets you mount the SnapShot at variable positions for hands-free scanning. (The enhanced-performance SnapShot model, #00-000-97, is recommended for use with the stand.)

Bar Code Symbologies

The symbologies listed were supported at the time this user's guide was printed. Additional symbologies may also be supported, while some of the symbologies listed may be discontinued. Please contact your dealer or Percon Customer Service for current information.

The Percon SnapShot decoded models recognize and decode the following symbologies:

- Codabar/Ames
- Code 11
- Code 128
- Code 39/Extended ASCII
- Code 93
- EAN-8/13
- Interleaved 2 of 5
- JAN-8/13
- Labelcode 4/5
- Matrix 2 of 5
- MSI
- Standard 2 of 5
- UPC-A
- UPC-E
- UPC/EAN/JAN extensions

Supported Computers and Terminals

The Percon SnapShot may be used with the following computers or terminals:

- ADDS
- Data General D213, D413
- DEC
- Decision Data 3496, 3781
- IBM 3151, 3180, 3191, 3192, 3196, 3197
- IBM-compatible PC/XT/AT and PS/2
- IDEA 276, 277, 486, 487
- I/O Corp 2476
- Macintosh
- NCR 2900
- NEC PowerMate
- TeleVideo 935, 965, 9065, 9320
- Telex 1196, 1472, 1476, 180-1

CHAPTER 2

Using the Percon SnapShot

This chapter and the rest of this user's guide describe how to use the decoded models of the Percon SnapShot. If you are using an undecoded model, please refer to the user's guide that came with it.

Connecting the Percon SnapShot to Your Computer or Terminal

The Percon SnapShot can be connected to a serial port on your computer or terminal. You can also use the SnapShot as a keyboard wedge.

The interface cable you need to use with your SnapShot depends on the type of connection (serial or keyboard wedge) and the type of computer or terminal you are connecting it to. Be sure you have the correct Percon cable before beginning the installation. (Contact your dealer or Percon Customer Service for information.)

FIGURE 2-1
Attaching the cable

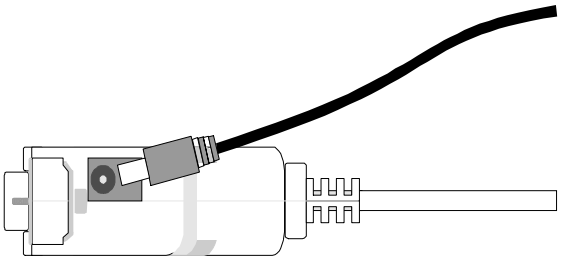
Serial Installation

The SnapShot can be connected directly to a computer (stand-alone configuration). It can also be installed between a workstation and its host computer (eavesdrop configuration).

STAND-ALONE CONFIGURATION This installation requires Percon cable #00-343-00 (9-pin connector) or #00-344-00 (25-pin) and power adapter #00-896-00. Complete the following steps:

1. Turn your computer off.
2. Insert the cable's RJ plug into the socket on the SnapShot's base (see figure 2-1).
3. Attach the connector on the other end of the cable to an available serial port on your computer.
4. Attach the small, round plug of the power adapter to the power input jack on the cable connector (see figure 2-2). Plug the other end into an outlet or power strip (preferably one that has surge protection).

FIGURE 2-2
Connecting the power adapter



5. Turn your computer on.
6. Scan the following bar code to set the SnapShot for serial operation:

EAVESDROP CONFIGURATION This installation requires two Percon cables: #00-345-00 and a Percon cable made specifically for your model of computer or terminal. It also requires power adapter #00-896-00. Complete the following steps:

1. Turn your computer or terminal off.
2. Insert the cable's RJ plug into the socket on the SnapShot's base (see figure 2-1).
3. One connector on the eavesdrop cable is labeled with the cable number. Connect the free end of the SnapShot cable to that connector.
4. Locate the cable that connects your computer or terminal to the host. Unplug that cable from the computer or terminal's serial port, and attach it to the connector labeled COMPUTER on the eavesdrop cable.
5. Attach the connector labeled TERMINAL on the eavesdrop cable to the computer or terminal's serial port.
6. Attach the small, round plug of the power adapter to the power input jack on the SnapShot cable connector (see figure 2-2). Plug the other end into an outlet or power strip (preferably one that has surge protection).

7. Turn your computer or terminal on.
8. Scan the following bar code to set the SnapShot for serial operation:

Keyboard Wedge Installation

This installation requires Percon cable #00-340-00 (standard AT connectors) or #00-341-00 (PS/2-style connectors), or cable #00-345-00 and a Percon cable made specifically for your model of computer or terminal. Complete the following steps.

1. Turn your computer or terminal off, and unplug the keyboard.
2. Insert the cable's RJ plug into the socket on the SnapShot's base (see figure 2-1).
3. Plug the male connector at the other end of the cable into the keyboard input jack on the computer or terminal.
4. Plug the keyboard cable into the female connector on the SnapShot cable.
5. Turn on the computer or terminal.
6. Scan the programming bar code for the type of computer or terminal you are using. (The bar codes for host devices are on pages 101–102).

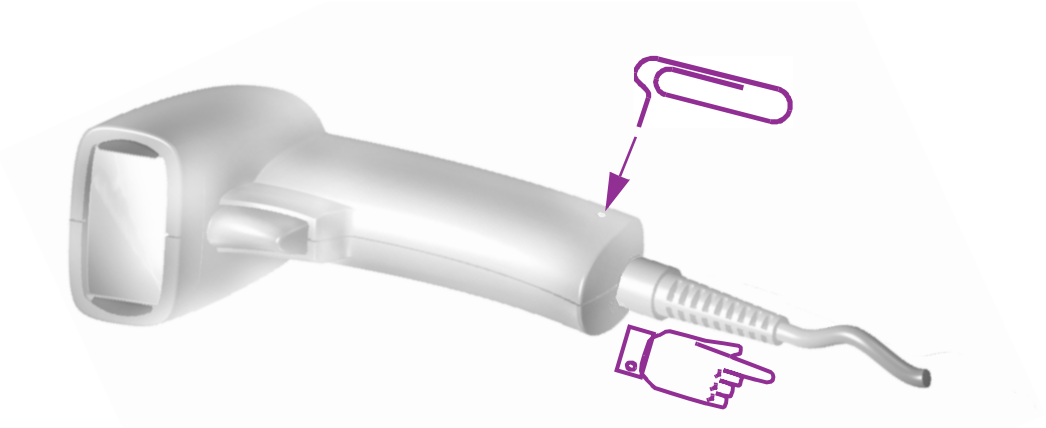
NOTE *On Macintosh computers, the keyboard input jacks are called Apple Desktop Bus (ADB) ports. They are marked with the following icon:*

Removing the SnapShot Cable

To remove the SnapShot cable, complete the following steps:

1. Unbend a paper clip, and place the end of the paper clip into the hole near the base of the SnapShot handle (see figure 2-3).
2. While pressing the paper clip in the hole, gently pull on the cable where it enters the base of the SnapShot. The cable should slide out of the SnapShot.

FIGURE 2-3 Removing the SnapShot cable



Scanning Range

The scanning range depends on the type of SnapShot scanner you are using. Start with the scanner about two inches away from the label. If you do not get a good read right away, try moving the SnapShot closer to or farther from the label.

Trigger Modes

The Percon SnapShot has three modes of trigger operation: normal mode, autoscan mode, and multiscan mode. How you use your SnapShot depends on the mode you have selected. Normal mode is the default setting. To change the trigger mode, use the bar codes on page 99.

Normal Mode

To use the SnapShot in normal mode, just point the scanner at the bar code you want to read, and then press the trigger. The red "Scan" LED on the top will light up. Hold the trigger down until the SnapShot successfully reads the bar code. This is indicated by the green "Good Read" light and a beep. Release the trigger when you hear the beep. Point the scanner and press the trigger again to read another bar code.

Autoscan Mode

With the SnapShot set to autoscan mode, you press and release the trigger once to turn the unit on. You can then read several bar codes without having to press the trigger for each one. When you press the trigger again, the SnapShot turns off. This mode is handy for using the SnapShot in its optional stand.

Multiscan Mode

With the SnapShot in multiscan mode, you can scan bar codes without pressing and releasing the trigger for each one. Press the trigger and hold it down while scanning the bar codes you want to read. The SnapShot will beep at each good read. Release the trigger when you are finished scanning.

Power Management

SnapShot units that use software version 3.E or later have a power-reduction feature. This feature helps extend battery life in laptops and portable data terminals used with the SnapShot. Power reduction is available only in normal and multi-scan trigger modes (see page 8).

When the SnapShot unit is on but has not been used for a certain amount of time, the unit enters idle mode. The default idle mode timeout is 30 seconds. You can tell that the SnapShot is in idle mode when the mirror in the laser stops flipping. *(**WARNING**: Do not pull the trigger while looking in the laser window.)* The SnapShot will remain in idle mode until you pull the trigger or it receives a signal from the host.

To change the idle mode timeout, use the bar codes on page 100, or set parameter D6 using one of the programming methods described in chapter 3. Set D6 to 00 to turn idle mode off.

CHAPTER 3

Programming the Percon SnapShot

The Percon SnapShot is configured with certain default parameter settings before it is shipped from the factory. These predefined defaults will work for most applications. However, you may need to customize your settings for the specific types of bar codes you will be scanning.

You can program your Percon SnapShot with any of the following methods:

- Predefined-default programming—see page 12
- Auto-learn programming—see page 13
- Menu programming—see page 14
- Bar code batch programming—see page 16
- On-screen programming—see page 18
- Serial batch programming—see page 22

Predefined Defaults

The Percon SnapShot has the following sets of default parameters:

- **Predefined Default 0 (D0)** turns every on/off parameter off and sets all minimum and maximum lengths to zero. This default set makes it easy for you to start with everything off and then enable only the bar code symbologies and parameters you wish to use. This can prevent unwanted data entry to your applications.
- **Predefined Default 1 (D1)** turns every on/off parameter on, sets all minimum lengths as low as possible, and sets all maximum lengths as high as possible. It also sets preambles and postambles. This default set gives you the best chance of reading an unknown bar code symbology. It also identifies the symbology of each bar code you scan.
- **Predefined Default 2 (D2)** is the default set that was installed in the SnapShot at the factory. This default set will work for most applications.

NOTE *The host device setting (C0) is not affected by the predefined default sets.*

You can reset your Percon SnapShot to a predefined default set by scanning the appropriate bar code on page 82.

Auto-Learn

Auto-Learn is the simplest method of customizing the Percon SnapShot. With Auto-Learn, you "teach" the scanner to accept the types of bar codes you use.

Current settings for the SnapShot remain unchanged unless they are explicitly set during Auto-Learn programming. For example, enabling Code 11 does not affect other symbologies. To disable all symbologies except the ones you want to use, program the SnapShot to use Predefined Default 0 (see page 12) before starting Auto-Learn.

To program the SnapShot using Auto-Learn . . .

1. Scan the START bar code below. (The bar code also appears on the last page of this user's guide.)

START

To quit Auto-Learn mode without saving the setup, scan the E bar code and then the F bar code below, in order.

2. Scan a sample of each of your bar code labels. Be sure the SnapShot beeps after each read. It is important that you scan each type of label (e.g., Code 39, UPC) as well as the smallest and largest bar codes (e.g., 6 characters and 10 characters) that you will want the SnapShot to read.
3. Save the setup by scanning the following bar code ***twice***. (This bar code also appears on the last page of this user's guide.)

Menu Programming

This programming method makes use of a "menu" of bar codes found on the last page of this user's guide. You can use these bar codes to enter the programming I.D. numbers and settings listed in appendix A.

To program the SnapShot using the bar code menu . . .

1. In appendix A, find the identification number (I.D. #) of the parameter you want to change.
2. Scan the START bar code at the top of the bar code menu on the last page of this user's guide.
3. Scan the bar codes for the digits of the parameter's I.D. number. Then scan the bar codes for the setting you want to make or string you want to enter.

   For example, the I.D. number for enabling Codabar is 20, and the code for On is 1. So to turn on Codabar, you would scan 2 and 0 (for 20) and then scan 1 (for On). (For other examples, see "Entering Values," "Entering Strings," and "Setting an Autoterminator," below and on the next page.)
4. Save the programming changes by scanning the bar code labeled E in the bar code menu *twice*.

If you make a mistake or "get lost" while in programming mode, scan the ESC bar code near the top of the menu. Then continue from step 3. To quit programming mode without saving any changes, scan the E bar code and then the F bar code in the menu.

Entering Values

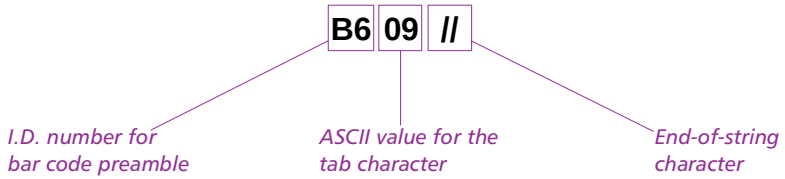
To enter a value setting, you must scan two bar codes for the I.D. number and two more for the value. For example, to set a minimum length of 6 for Code 128, you would scan 4 and 1 (for I.D. #41, Code 128 minimum length) and then 0 and 6 (for the value 06).

Entering Strings

Several programming functions of the SnapShot include the storing of string commands. These functions include the preamble, postamble, extra fields, and input editing definition-output sequences. The SnapShot has a limited amount of memory dedicated to storing the data characters used in string commands. The total number of characters that can be stored in all string commands combined is 120, which should be sufficient for most applications.

To enter a string (such as a preamble or postamble), look in appendix B for the ASCII values of the characters you want to enter, and then scan the bar codes for those values. End the string by scanning the bar code for //, which is the end-of-string character.

For example, to include a tab at the beginning of every block of data you read, you would set a bar code preamble by scanning the bar codes for the following characters:



Setting an Autoterminator

An *autoterminator* is an ASCII character that the SnapShot places at the end of each data transmission. You can use autoterminators to separate input with tabs, carriage returns, punctuation, or other ASCII characters.

To set an autoterminator (I.D. #B1), scan the bar codes for the ASCII value of a single ASCII character with no string terminator (//). For example, to set an autoterminator of CR (carriage return), you would enter **B10D**. To set no autoterminator, you would enter **B100**.

Bar Code Batch Programming

To accept batch programming, the Percon SnapShot must be programmed to use the extended (or full ASCII) Code 39 character set. The SnapShot was shipped from the factory ready to read the extended character set. If you have changed the default, scan the following bar code to enable full ASCII mode:

You can create the bar codes with a bar code printing program, a word-processing program, a desktop publishing program, or any other program that can use and print a Code 39 font. See the guidelines on this page.

Bar code batch programming uses bar codes that program the Percon SnapShot with a single scan. Each batch bar code contains commands to place the scanner into programming mode, set one or more parameters, save the settings, and exit programming mode. Appendix E provides bar codes that you can use for setting many programming parameters for the Percon SnapShot.

To program the SnapShot with bar codes . . .

1. Find the bar codes you need in appendix E (see the contents list on page 81), or create custom bar codes for the settings you want to make.
2. Scan the bar codes with your SnapShot.

Guidelines for Creating Batch Bar Codes

Keep the following in mind when creating bar codes for batch programming:

- ❑ Create your programming bar codes using the standard Code 39 character set, *not* the full ASCII character set. (The SnapShot must read the bar codes in full ASCII Code 39 mode, however.)
- ❑ The first and last character of each bar code must be an asterisk (*), the start and stop character for Code 39. (Most label-printing software programs automatically place the asterisks in Code 39 bar codes.)
- ❑ The first asterisk of each bar code must be followed immediately by the characters **$+$-**. This lets the SnapShot know that it is reading programming information rather than data.
- ❑ Each bar code must end with **EE** and the final asterisk for the programming changes to be saved and the SnapShot to exit programming mode. The SnapShot will treat multiple bar codes of programming information as one entry as long as **EE** does not appear until the end of the last bar code.

- String data must appear in a programming bar code after the I.D. number for the code parameter. Use two slashes (//) to terminate the string. (Parameters that accept string data include preambles and postambles.)
- You must enter control or "action" characters (for example, tabs, line feeds, or function keys) by encoding their Code 39 equivalents (see appendix B). For example, to enter a horizontal tab, you would include the character pair **$I** in the bar code.

The following bar code provides an example of batch programming. Scanning it will turn off the autoterminator and set the maximum length for Interleaved 2 of 5 labels to 15.

Like all Code 39 bar codes, this one starts and ends with an asterisk (*). The bar code also includes the following character combinations:

$+$-	Starts programming mode
B1	The parameter I.D. number for autoterminator
%U	Turns parameter B1 off (%U is the Code 39 equivalent of the null character.)
0A	The parameter I.D. number for Interleaved 2 of 5 maximum length
15	Sets parameter 0A to 15 characters
EE	Saves the new settings and exits programming mode

On-Screen Programming

This method lets you display programming parameters and settings on your screen. You can select parameters and change their settings using the computer's keyboard.

To program the Percon SnapShot on-screen . . .

1. Open a text editor (for example, Microsoft Notepad), or go to the DOS prompt.
2. If you are using a text editor, use Courier or another monospaced font. If you are programming from the DOS prompt, type **copy con nul** and press Enter.
3. Read the following bar code with your SnapShot scanner:

   The on-screen programming menu should appear on your screen, as shown in figure 3-1.

   The menu is arranged in categories and subcategories identified by numbers and letters. Two or more categories or subcategories can share a single number or letter; for example, Code 39 and Interleaved 2 of 5 both use 0 (zero). The last line of the menu prompts you for input.

FIGURE 3-1
Main menu for on-screen programming

```
***** PERCON SNAPSHOT VER X.X MAIN MENU *****

BAR CODE        INPUT EDITING        COMMUNICATIONS
--------        -------------        --------------
0 CODE39        6 EXTRA FIELDS       C HOST SELECTION
0 I2of5         7 DEFINITION 1       C SERIAL OPTIONS
1 M2of5         8 DEFINITION 2
1 S2of5         9 DEFINITION 3       D DEFAULTS
1 CODE11        A DEFINITION 4       D MORE CONTROLS
2 CODABAR/AMES  A ALLOW QUAL ONLY
2 MSI                                E SHOW/EXIT
3 UPC-A
3 UPC-E
3 EAN/JAN
4 CODE128       B OTHER CONTROLS
5 LCODE-4/5     5 SYMBOLOGY IDS
USE BACKSPACE TO EXIT MODES
(0-E):
```

To return to the previous menu level, press the Backspace *key on your keyboard.*

4. Type the I.D. of the category or subcategory you want to display or change, and press Enter. For example, enter **3** to display the current parameter settings for UPC-A bar codes. This will also display the parameters and settings for the other subcategories using 3 as an I.D., as shown in figure 3-2.

   Notice that the parameters in this list are also identified by numbers and letters. The value following the equals sign (=) in each line is the current setting for that parameter (0 means Off, and 1 means On). The last line is the input prompt.

FIGURE 3-2 On-screen programming options for UPC and EAN bar codes

```
UPC-A
0 ENABLE=1
1 TRANSMIT SYSTEM DIGIT=1
2 TRANSMIT CHECKSUM=0
3 CONVERT UPC-A TO EAN-13=0
UPC-E
4 SYSTEM DIGIT 0 ENABLE=1
5 SYSTEM DIGIT 1 ENABLE=1
6 CONVERT UPC-E TO UPC-A=0
7 TRANSMIT SYSTEM DIGIT=0
8 TRANSMIT CHECKSUM=0
EAN/JAN
9 EAN/JAN-8 ENABLE=1
A EAN/JAN-13 ENABLE=1
B CONVERT EAN-13 TO ISBN=0
F TRANSMIT EAN/JAN CHECKSUM=1
EXTENSIONS
C ALLOW 2 DIGIT EXTENSIONS=1
D ALLOW 5 DIGIT EXTENSIONS=0
E REQUIRE EXTENSIONS=0
(0-E):
```

5. Type the I.D. of the parameter whose setting you want to change, and press Enter. A prompt will display the valid settings for the parameter in parentheses and separated by a "pipe" character (¦), as shown in the following example:

```
ENABLE UPC-A (0¦1):
```

6. Type the setting you want to use, and press Enter. The list of options will be redisplayed to verify the change you made.

7. Select another option from the list, or press the Backspace key to return to the main menu.

NOTE *To leave on-screen programming without saving any changes, type* EF *at the main-menu prompt and press* Enter.

8. When you are finished checking or changing parameter settings, type **EE** at the main-menu prompt and press Enter. This will save your changes and exit on-screen programming.
9. If you are working in DOS, press Ctrl+Z to return to the DOS prompt.

Displaying and Printing Current Settings

While you are in on-screen programming mode, you can display the current settings for all the parameters. At the main menu prompt, type **E** and press Enter, and then type **D** and press Enter again. At the next prompt, type **1** and press Enter. A list of all the parameters will appear on your screen. To pause the display of the list at any time, press the Pause key on your keyboard; then press any key to continue the display.

If you are using a text editor, you can use commands in the editor's menu to print the list of settings or save it to a file. If you are working from the DOS prompt, you can also save or print the list of settings. To print or save the list, follow steps 1 through 9 above, with the following changes in step 2:

- To print the list, use the following command: **copy con prn**.
- To save the list as a file, use the following command: **copy con *filename***, replacing *filename* with the name you want to use for the file.

Serial Batch Programming

The serial batch method of programming involves creating an ASCII file of programming commands and then transmitting the ASCII file to the Percon SnapShot. Create the file in DOS or a text editor (Microsoft Notepad, for example), and download it to the computer with a communications program (Procomm or Hyperterminal, for example). The SnapShot must be connected to a serial port on the host computer, and its serial parameter settings must match the host's settings. The SnapShot's setting for start-program enable (I.D. #B0) must be either 01 or 03.

Follow these guidelines when creating ASCII files for serial batch programming:

- The first line of the file must begin with **$+$-**. This is the SnapShot's "trigger" to enter programming mode.
- Valid characters for the first character in a line (except the first line) are programming variables or a semicolon.
- A semicolon as the first character in a line indicates the beginning of a comment. A semicolon anywhere else in a string is treated as a normal character. An end-of-line character (CR or CR/LF) marks the end of the comment. (Comments contain information useful to you or anyone else reading the file. They have no effect on the SnapShot.)
- Data must appear in a line in a specific order: the programming I.D. number for the parameter followed by a value for the parameter setting. If the parameter type is a string, the string characters must be followed by two slashes (//) to terminate the string. (You can use strings as values for preambles, postambles, and extra fields in input editing.)
- You must enter control or "action" characters (for example, tabs, line feeds, or function keys) as a "mnemonic" word enclosed in parentheses (see appendix B). For example, to enter a horizontal tab, you would type **(TABR)**.
- The file must end with **EE** followed by an end-of-line character (CR or CR/LF) for the programming changes to be saved and the SnapShot to exit programming mode.

The following is an example of an ASCII file used for serial batch programming:

```
$+$-
;This is a file example with comments
;The first line started programming mode
;Use predefined default D0
D0
;Enable Code 39--00 is Code 39 enable/disable,
;   1 = enable
001
;Set Code 39 minimum length (01) TO 4 (04)
0104
;Set postamble (B7) to a right tab
B7(TABR)//
;Save changes and exit programming mode
EE
```

The last line of the file is blank, because a carriage return ended the line before it.

The following example would have the same results when used to program the SnapShot:

```
$+$-D00010104B7(TABR)//EE
```

Serial Programming Parameters

You can use batch programming to set serial parameters for the SnapShot. This section describes the parameters; bar codes for setting them begin on page 102. (For a complete listing of parameters and defaults, see appendix A.)

DATA TYPE (I.D. #C0) This parameter determines the data content transmitted to or received from the host. The ASCII setting transmits and receives the standard ASCII character set (with the exception of the null character, ASCII 00h, which is received as 80h). The PC SCAN CODES setting transmits the press-and-release codes for the keys on a PC keyboard.

BAUD RATE (I.D. #C1) This parameter determines the communication speed. The setting you use for the SnapShot must match the setting that the host uses.

DATA BITS (I.D. #C2) This parameter specifies the number of data bits in each character.

PARITY (I.D. #C3) This parameter specifies the parity of the data characters.

STOP BITS (I.D. #C4) This parameter selects the minimum space between data characters.

XON/XOFF HANDSHAKING (I.D. #C5) This parameter is used for software data-flow control. The host can send the Xon character (ASCII 11h) to allow transmission and send the Xoff character (ASCII 13h) to stop transmission.

PROTOCOL (I.D. #CA) This parameter specifies the format of the data records (groups of data characters) transmitted and received.

In *EOR-only* protocol, a record consists of data characters followed by the end-of-record (EOR) character. (The Xon/Xoff command characters are received with no EOR character appended.) When the protocol parameter is set to 00 (EOR only), the data records are received according to both the EOR-character (I.D. #CC) and timeout (I.D. #CD) settings. Records received with the EOR character appended are processed immediately. If the timeout setting is between 01 and 99 (10 to 990 milliseconds), then the data is processed if either an EOR character is received or a timeout occurs.

In *ACK/NAK* protocol, a record consists of data characters followed by the end-of-record (EOR) character and a check character. This protocol transmits and receives ASCII ACK/NAK (ACK = 06h, NAK = 15h) characters for data integrity control.

A data record must have an EOR character and a check character (mod 256 sum of all data characters and the EOR character) appended to be considered good. (The EOR-character setting, I.D. #CC, cannot be 00.) If the record is good, an ACK character is transmitted to inform the host that the data arrived successfully. If the record is bad, a NAK character is transmitted to the host.

If the NAK character is received or a timeout occurs, the data record is retransmitted. Up to ten attempts will be made. If a communications error occurs, a nine-beep error signal is issued and the SnapShot is reset.

The interfunction delay setting (I.D. #BE; the default is 00) determines the delay between the receipt of the data record and the transmission of the ACK/NAK response. The length of time the SnapShot will wait before checking for a valid record after each character is received is determined by the timeout setting. If the timeout setting is between 01 and 99, the delay is between 10 milliseconds and 990 milliseconds; if the timeout setting is 00, the delay is 2.55 seconds.

REQUIRE HOST RESPONSE (I.D. #CE) Host response records can be either host-controlled indicator records (see below) or serial batch programming records. If this parameter is set to on, the SnapShot will wait after sending a packet of data, and the host must respond with a host-controlled indicator record before the SnapShot can continue decoding.

HOST-CONTROLLED INDICATORS (I.D. #CF) Host-controlled indicator (HCI) data consists of special ASCII records either transmitted to the SnapShot through the serial communications interface or sent to the system through output redirection (see "Redirecting Output" on page 38). Turning this parameter setting to on provides the host with a method to indicate, through the serial port, the status (good or bad) of a read by changing the light-emitting diode (LED), sounding the beeper, or both. You can also use HCI to include delays between LED and beep events, visible laser feedback, and trigger disabling.

Table 3-1 lists HCI command assignments. All commands are human-readable ASCII characters. An example of a host-controlled indicator command block appears after the table.

TABLE 3-1 Host-Controlled Indicator Commands

Type	Command	Meaning
Delay *(control character* D *followed by a value from* 0 *through* 254*, representing 10-millisecond increments)*	D0	No delay
	D1	10-millisecond delay
	D254	2,540-millisecond delay
Beep volume *(control character* B *followed by a value from* 0 *through* 3*)*	B0	Off
	B1	Low
	B2	Medium
	B3	Loud
Beep tone *(control character* T *followed by a value from* 0 *through* 7*)*	T0	2400Hz
	T1	2618Hz
	T2	2880Hz
	T3	3200Hz
	T4	3600Hz
	T5	3840Hz
	T6	4114Hz
	T7	4430Hz
LED *(control character* L *followed by a value from* 0 *through* 2*)*	L0	Off
	L1	Red
	L2	Green
CTRL high/low for pin 10 on 25-pin connector *(control character* C *followed by* 0 *or* 1*)*	C0	Low
	C1	High

table continues

Type	Command	Meaning
Laser feedback *(**L**eft, **M**iddle, and **R**ight segments in bold are visible)** **A laser feedback command must be followed by a delay command. For example,* F5D50 *will turn the left and middle laser segments on for 500mS (delay=50×10mS). The SnapShot will reject a command of* F5.	F0	L M **R**
	F1	L **M** R
	F2	L **M R**
	F3	**L** M R
	F4	**L** M **R**
	F5	**L M** R
	F6	**L M R**
Trigger enabled/disabled	I0	Enabled
	I1	Disabled

The SnapShot can receive up to 115 bytes of control data, which can be sent from the host at any time. By default, after a bar code has been read successfully, the red LED on the SnapShot lights up, the SnapShot beeps (unless the volume setting is 0), and the data is sent to the host. If the require-host-response parameter is set to on, the SnapShot will wait for the host to respond with a valid packet of data before reading additional bar code input.

The following example of a host-controlled indicator command block will set the SnapShot's beeper tone to 3840Hz, turn the beeper on at full volume, turn the green LED on, wait 50 milliseconds, turn the green LED off, wait 50 milliseconds, turn the green LED on again, wait 50 milliseconds, turn the LED off, wait 50 milliseconds, and turn the beeper off:

```
T5B3L2D5L0D5L2D5L0D5B0
```

CHAPTER 4

Input Editing

Input editing is available only in decoded laser models of the Percon SnapShot. It is not available in the undecoded models.

The Percon SnapShot gives you the ability to modify bar code input. This feature is known as *input editing.* With input editing, you program the SnapShot to change the format of the input data before it sends the data to your computer or terminal.

Table 4-1 shows just a few of the many uses for input editing.

Input editing overrides standard preamble and postamble settings. Programmed preambles and postambles will be attached only to data input that doesn't qualify for editing (see the next section).

TABLE 4-1 Examples of Input Editing

By programming the SnapShot to ...	You can change this ...	To this ...
Delete the first three characters of each string	A0037066 A0037067	37066 37067
Separate the input into two fields separated by a space	A0037066 A0037067	A 0037066 A 0037067 *or* A003 7066 A003 7067
Separate the input into three fields separated by dashes	A0037066 A0037067	A-003-7066 A-003-7067
Rearrange the order of the fields	A0037066 A0037067	0037066A 0037067A
Separate the input into fields separated by commas and rearrange the order of the fields	A0037066 A0037067	7066,A003 7067,A003
Add text to the data	A0037066 A0037067	Ser. #A0037066 Ser. #A0037067 or A0037066 Jan/95 A0037067 Jan/95

Creating Qualification Definitions

To qualify for input editing, the data that enters the SnapShot must meet certain criteria that you define. For example, you may require the data to be Code 39, to have exactly ten numbers or letters, and to end with an X. These criteria make up a *qualification definition.* Any input that meets all the criteria for a definition will be edited according to the parameters that you set for it and output in the format that you specify.

You can create up to four different qualification definitions for input editing. The definitions are numbered 1 through 4, and each definition has its own set of ID numbers for programming parameters (see table 4-2 beginning on page 32). Parameters for each definition include the following:

- **Symbology** This specifies whether the data must be of a particular bar code type. Only data of the designated symbology can be considered for qualification. (This parameter can also be set to consider *any* input regardless of symbology.)
- **Record length** This specifies what length (from 1 through 99 characters) the data must be. Only data of the designated length will be considered. (This parameter can also be set to consider data of *any* length.)
- **Number of input fields** This specifies into how many fields (from 1 through 8) the input data will be broken down. Each field can then be defined as a specific number of characters (or *any* number of characters) beginning with a specific character (or *any* character).
- **Output sequence** This specifies the order in which to output the defined fields. The output sequence can also include additional information, such as symbology identifiers, preambles, postambles, or up to 16 extra fields that contain text strings. These extra fields are numbered 0 through 9 and A through F; each field has its own programming ID number. (For more information about output sequencing, see "Understanding Output Sequences," beginning on page 36.)

When data is read, the SnapShot processes the definitions in numerical order. If the input data qualifies under definition 1, the SnapShot edits and outputs the data; if the data does not qualify under definition 1, the SnapShot tries definition 2. The process continues in order through all four definitions, and the data is edited according to the first definition under which it qualifies; the other definitions are not used. If the data doesn't qualify under any of the four definitions, then the SnapShot outputs the data without editing it. If the "allow qualified data only" parameter (ID #AD) is enabled, no data will be output unless it qualifies under one of the definitions.

Parameters for Input-Editing Definitions

Table 4-2 lists ID numbers and predefined defaults for parameters for input-editing definitions 1 through 4. You can change your SnapShot's settings for these parameters using any programming method (see chapter 3).

TABLE 4-2 Input Editing Parameters

Parameter	ID #	Type	Predefined defaults		
			D0	D1	D2
Definition 1			*Enter 1 for On and 0 for Off.*		
Enable	70	On/Off	Off	On	Off
Symbology *(0 = any; for other values, see ID #B5 on page 49)*	71	Value	0	C	0
Record length *(01–99, or 00 for any)*	72	Value	00	00	00
Number of fields *(01–08)*	73	Value	01	05	01

table continues

Parameter	ID #	Type	Predefined defaults		
			D0	D1	D2
Fields 1–8 *(length followed by qualifier; 00 = any length; (00) = any qualifier)*					
Field 1 Field 2 Field 3 Field 4 Field 5 Field 6 Field 7 Field 8	74 75 76 77 78 79 7A 7B	Field	00(00)	00(00) 01! 00(00) 01= 03(00) 00(00) 00(00) 00(00)	00(00)
Output sequence *(see table 4-3 on page 36)*	7C	String	//	*	//
**60610561036201B1// (see "Understanding Output Sequences," beginning on page 36, for explanation)*					
Definition 2			*Enter 1 for On and 0 for Off.*		
Enable	80	On/Off	Off	Off	Off
Symbology *(0 = any; for other values, see ID #B5 on page 49)*	81	Value	0	0	0
Record length *(01–99, or 00 for any)*	82	Value	00	00	00
Number of fields *(01–08)*	83	Value	01	01	01
Fields *(length followed by qualifier; 00 = any length; (00) = any qualifier)*					
Field 1 Field 2 Field 3 Field 4 Field 5 Field 6 Field 7 Field 8	84 85 86 87 88 89 8A 8B	Field	00(00)	00(00)	00(00)
Output sequence *(see table 4-3 on page 36)*	8C	String	//	//	//

table continues

Parameter	ID #	Type	Predefined defaults		
			D0	D1	D2
Definition 3			*Enter 1 for On and 0 for Off.*		
Enable	90	On/Off	Off	Off	Off
Symbology *(0 = any; for other values, see ID #B5 on page 49)*	91	Value	0	0	0
Record length *(01–99, or 00 for any)*	92	Value	00	00	00
Number of fields *(01–08)*	93	Value	01	01	01
Fields *(length followed by qualifier; 00 = any length; (00) = any qualifier)*					
Field 1 Field 2 Field 3 Field 4 Field 5 Field 6 Field 7 Field 8	94 95 96 97 98 99 9A 9B	Field	00(00)	00(00)	00(00)
Output sequence *(see table 4-3 on page 36)*	9C	String	//	//	//

table continues

Parameter	ID #	Type	Predefined defaults		
			D0	D1	D2
Definition 4			*Enter 1 for On and 0 for Off.*		
Enable	A0	On/Off	Off	Off	Off
Symbology *(0 = any; for other values, see ID #B5 on page 49)*	A1	Value	0	0	0
Record length *(01–99, or 00 for any)*	A2	Value	00	00	00
Number of fields *(01–08)*	A3	Value	01	01	01
Fields *(length followed by qualifier; 00 = any length; (00) = any qualifier)*					
Field 1 Field 2 Field 3 Field 4 Field 5 Field 6 Field 7 Field 8	A4 A5 A6 A7 A8 A9 AA AB	Field	00(00)	00(00)	00(00)
Output sequence *(see table 4-3 on page 36)*	AC	String	//	//	//
Allow qualified data only	AD	On/Off	Off	Off	Off

Understanding Output Sequences

An output sequence does not contain any text that will actually be output; it contains pointers to fields, which may contain input data or text strings. For example, you cannot include a comma in an output sequence; instead, you must include the output-sequence value of the field containing a comma.

An output sequence can also contain autoterminators, preambles, and postambles. Each field and other type of information is assigned a specific value (either the field number or letter, or the parameter ID number) for inclusion in the output sequence (see table 4-3).

Each output sequence must end with an end-of-string character (//).

Each input editing definition has its own output sequence with its own ID number. The order of the values in the output sequence determines the order in which the field contents and other information will appear in the output. If a field is not included in the output sequence, its contents will be stripped from the data during input editing.

TABLE 4-3 Output Sequence Settings

Type of Information	Value Used in Output Sequence	Actual Output
Fields 01–08	01–08	The contents of each specified field
Extra fields	60–6F	The contents of each specified field; see "Using Extra Fields," on page 37
Redirection commands	90–96	None; see table 4-5, on page 38
Autoterminator	B1	A single ASCII character
Symbology identifier	B5	A code identifying the input form
End-of-string character (//)	Must be used to end each output sequence	

Using Extra Fields

You can define up to 16 extra fields for input editing. Use the extra fields to include text strings or keyboard actions. For example, by defining one field to contain the word *aisle,* another field to contain the word *bin,* a third field to contain a tab, and another field to contain a space, you can change **N21263** to

aisle N21 bin 263

You can include the value for each extra field in the output sequence of any or all of the qualification definitions.

The total number of characters that can be stored in all string commands combined is 120.

Table 4-4 lists ID numbers and predefined defaults for extra fields. You can change your SnapShot's settings for these parameters using the bar code menu, bar code batch, serial batch, or on-screen method of programming.

TABLE 4-4
Extra-Field Parameters

Parameter	ID #	Type	Predefined defaults		
			D0	D1	D2
Extra field 0	60	String	//	Acc#//	//
Extra field 1	61	String	//	//*	//
Extra field 2	62	String	//	, //†	//
Extra fields 3–16	63–6F§	String	//	//	//

**Two spaces*
†A comma followed by a space
§Extra field 3 = 63, Extra field 4 = 64, Extra field 5 = 65, Extra field 6 = 66, Extra field 7 = 67, Extra field 8 = 68, Extra field 9 = 69, Extra field A = 6A, Extra field B = 6B, Extra field C = 6C, Extra field D = 6D, Extra field E = 6E, Extra field F = 6F

Redirecting Output

After input editing, data is normally output to the host computer or terminal. You can include output-redirection commands or system commands in the output sequence to redirect the data output (see table 4-5).

TABLE 4-5 Output-Redirection Settings

Value Used in Output Sequence	Effect
90	Switches output back to the host after data has been redirected
91	Redirects data as control commands to be sent to the system's host-controlled indicator (HCI) parser (see page 25)

An Input Editing Example

To read the bar codes in this example, your SnapShot must accept Code 39 bar codes with a maximum length of 26 characters. Scan the following bar code to reset your SnapShot to predefined default D2 and set the maximum length for Code 39 bar codes to 26:

Let's say you are the head of security for a large manufacturing company. Each employee in your company has an identification badge with a Code 39 bar code containing the employee's first name and last name, a five-digit employee number that begins with 0, and sometimes additional information. Names, numbers, and other information in the bar codes are separated by periods, as in the following example:

To enter certain areas of the building, employees must present their badges to a security guard, who scans the bar codes with a Percon SnapShot attached to a computer terminal. The information output to the computer also includes the location of the security station. The output is in the following format:

Last name, First name Emp. # Location

Today you are installing a SnapShot at a security station for Area M, and you need to program the SnapShot to output the data in the proper format. Using the example above, you want the output to be as follows:

Rogers, Sally 1836 Area M

To get the results you want, you need to complete three steps.

Step 1: Create a Qualification Definition

The definition will require the input to be Code 39 data of any length and will break that data down into seven fields, including (1) first name, (3) last name, (5) employee number with the leading zero dropped off, and (7) other information, as shown below:

Any input that doesn't meet the definition criteria will not be edited.

Table 4-6 lists the parameters and values you need to use. If you are using pre-defined defaults (see page 12), you need to program only the parameters whose values are different from the defaults. For example, the D1 default setting for ID #71 (definition 1 symbology) is C (Code 39); so if your SnapShot is using the D1 settings, you do not need to set ID #71.

TABLE 4-6 Parameter Settings for the Example

Parameter	ID #	Value	Meaning
Enable definition 1	70	1	Use definition 1 to filter incoming data.
Symbology	71	C	Only Code 39 input will be edited.
Record length	72	00	The incoming data can contain any number of characters.
Number of fields	73	07	The incoming data contains seven fields.
Field 1	74	00(00)	The first field can be of any length and can begin with any character.
Field 2	75	01.	The second field is exactly one character long and that character is a period.
Field 3	76	00(00)	The third field can be of any length and can begin with any character.
Field 4	77	02.	The second field is exactly two characters long and the first character is a period.
Field 5	78	04(00)	The fifth field is exactly four characters long and can begin with any character.
Field 6	79	01.	The sixth field is exactly one character long and that character is a period.
Field 7	7A	00(00)	The seventh field can be of any length and can begin with any character.

If you are using the bar code batch programming method and the D2 predefined defaults, your bar codes for the definition should look like the following:

Notice that the bar codes do not include settings for record length or for fields 1, 3, and 7. Since these parameters use the defaults, it is not necessary to include them in the bar codes. Also notice the **%U** in the second bar code. This is the Code 39 equivalent for the null character, which is used in place of 00 in bar code batch programming.

Step 2: Program Extra Fields

Set parameters for three extra fields to contain the following:

- ❑ The security station's location
- ❑ A comma and a space to separate the first name from the last name
- ❑ A tab to separate columns in the output

Table 4-7 lists the parameters and data strings you need to use. Each string ends with the end-of-string character (//).

TABLE 4-7 Parameter Settings for the Extra Fields

Parameter	ID #	String	Contents
Extra field 0	60	Area M//	The location of the security station
Extra field 1	61	, //	A comma followed by a space
Extra field 2	62	(TABR)//	A tab character

Your bar codes for the extra-field settings should look like the following:

Notice the use of the plus symbols (**+**) before the **R**, the **E,** and the second **A**. These cause the letters to be output as lowercase (*a*, *r*, and *e*). In the second bar code, **/L** is the Code 39 equivalent for a comma, and **$I** is the Code 39 equivalent for a tab character. Also notice that each extra-field setting ends with an end-of-string character (//).

Step 3: Program the Output Sequence

Enter the following codes: **03610162056260B1//**

where

03 is **field 3** (last name)
61 is **extra field 1** (comma and space)
01 is **field 1** (first name)
62 is **extra field 2** (tab)
05 is **field 5** (employee number without the leading 0)
62 is **extra field 2** (tab)
60 is **extra field 0** ("Area M")
B1 is the autoterminator (a carriage return)
// is the end-of-string character

Your bar code for the output sequence should look like the following:

NOTE *The output sequence must be programmed with a single bar code, since you cannot break a string into two bar codes.*

Once you've completed these steps, your SnapShot should be able to read the bar code on each employee's badge and report that the employee has entered Area M.

APPENDIX A

Programming Options

This chapter contains information about programmable settings for the Percon SnapShot. You can use the bar codes provided in appendix E to program your SnapShot. You can also use the bar code menu on the last page of this book or another method to program it (see chapter 3).

Table A-1 lists programming I.D. numbers for predefined defaults.

Table A-2 lists display and save-and-exit settings.

Table A-3 provides the following information:

For input-editing parameters, see chapter 4.

- **Code Parameter** is the "human" name for programming options.
- **I.D. #** is the SnapShot's "decoder" name for programming options. For example, if you wanted to set a Code 39 minimum label length, you would enter **01** when programming the SnapShot. Programming I.D. numbers given in this chapter can be used with all programming methods.
- **Type** tells what kind of setting to use for each code parameter:
  - **On/Off** is a toggle. **1** turns the parameter on, and **0** turns it off.
  - **Value** requires a two-character entry (e.g., **02** for two beeps after each good read, or **05** for a length of five).

- **String** uses one or more ASCII characters, followed by // to indicate the end of the string.
- **Immediate** takes effect as soon as the I.D. number is entered.

- **Acceptable Input** gives the settings or range of settings that you can use for each code parameter.
- **Predefined Defaults** tells how the parameter is set when you select predefined default D0, D1, or D2 (see page 12).

Table A-4 (on page 55) lists parameter settings for serial communications.

TABLE A-1 Predefined Defaults

Setting	I.D. #	Type
Predefined default set 0	D0	Immediate
Predefined default set 1	D1	Immediate
Predefined default set 2	D2	Immediate

TABLE A-2 Display and Save-and-Exit Settings

Setting	I.D. #	Type
Display settings (on-screen programming only)	ED	Immediate
Save and exit	EE	Immediate
Exit only, no save	EF	Immediate

TABLE A-3
General Programming Parameters

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Code 39			*Enter 1 for On and 0 for Off.*			
Enable	00	On/Off	On *or* Off	Off	On	On
Minimum length	01	Value	00–50	00	00	00
Maximum length	02	Value	01–50	01	50	20
Enable checksum	03	On/Off	On *or* Off	Off	Off	Off
Send checksum	04	On/Off	On *or* Off	Off	Off	Off
Full ASCII mode	05	On/Off	On *or* Off	Off	On	On
Alternate AIAG checksum	07	On/Off	On *or* Off	Off	Off	Off
Interleaved 2 of 5			*Enter 1 for On and 0 for Off.*			
Enable	08	On/Off	On *or* Off	Off	On	On
Minimum length	09	Value	02–50	02	02	06
Maximum length	0A	Value	02–50	02	50	10
Enable checksum	0B	On/Off	On *or* Off	Off	Off	Off
Send checksum	0C	On/Off	On *or* Off	Off	Off	Off
Use lengths 6 and 14 only	0D	On/Off	On *or* Off	Off	Off	Off
Matrix 2 of 5			*Enter 1 for On and 0 for Off.*			
Enable	10	On/Off	On *or* Off	Off	On	Off
Minimum length	11	Value	01–50	01	01	06
Maximum length	12	Value	01–50	01	50	10
Enable checksum	13	On/Off	On *or* Off	Off	Off	Off
Send checksum	14	On/Off	On *or* Off	Off	Off	Off

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Standard 2 of 5			*Enter 1 for On and 0 for Off.*			
Enable	15	On/Off	On *or* Off	Off	On	Off
Minimum length	16	Value	01–50	01	01	06
Maximum length	17	Value	01–50	01	50	10
Enable checksum	18	On/Off	On *or* Off	Off	Off	Off
Send checksum	19	On/Off	On *or* Off	Off	Off	Off
Use 2-bar start/stop	1A	On/Off	On *or* Off	Off	Off	Off
Code 11			*Enter 1 for On and 0 for Off.*			
Enable	1B	On/Off	On *or* Off	Off	On	Off
Minimum length	1C	Value	01–50	01	01	04
Maximum length	1D	Value	01–50	01	50	10
Require 2 checksums	1E	On/Off	On *or* Off	Off	Off	Off
Send checksum(s)	1F	On/Off	On *or* Off	Off	On	Off
Codabar/Ames			*Enter 1 for On and 0 for Off.*			
Enable	20	On/Off	On *or* Off	Off	On	On
Minimum length	21	Value	01–50	01	01	04
Maximum length	22	Value	01–50	01	50	20
Send start/stop	23	On/Off	On *or* Off	Off	Off	Off
Codabar-to-CLSI conversion	24	On/Off	On *or* Off	Off	On	On

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Codabar/Ames *(continued)*			*Enter 1 for On and 0 for Off.*			
Wide intercharacter gaps allowed	25	On/Off	On *or* Off	Off	On	Off
Checksum	2F	Value	00 = Disable 01 = Enable 02 = Send	00	00	00
MSI			*Enter 1 for On and 0 for Off.*			
Enable	26	On/Off	On *or* Off	Off	On	Off
Minimum length	27	Value	01–14	01	01	04
Maximum length	28	Value	01–14	01	14	10
Require 2 checksums	29	On/Off	On *or* Off	Off	Off	Off
2nd checksum Mod 11	2A	On/Off	On *or* Off	Off	Off	Off
Send checksum(s)	2B	On/Off	On *or* Off	Off	On	Off
Code 93			*Enter 1 for On and 0 for Off.*			
Enable	2C	On/Off	On *or* Off	Off	On	On
Minimum length	2D	Value	00–50	00	01	02
Maximum length	2E	Value	01–50	00	50	20
Universal Product Code-A (UPC-A)			*Enter 1 for On and 0 for Off.*			
Enable	30	On/Off	On *or* Off	Off	On	On
Send system digit	31	On/Off	On *or* Off	Off	On	On
Send checksum	32	On/Off	On *or* Off	Off	On	Off
Convert UPC-A to EAN-13	33	On/Off	On *or* Off	Off	On	Off

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Universal Product Code-E (UPC-E)			*Enter 1 for On and 0 for Off.*			
Use system digit 0	34	On/Off	On *or* Off	Off	On	On
Use system digit 1	35	On/Off	On *or* Off	Off	On	On
Convert UPC-E to UPC-A	36	On/Off	On *or* Off	Off	On	Off
Send system digit	37	On/Off	On *or* Off	Off	On	Off
Send checksum	38	On/Off	On *or* Off	Off	On	Off
European Article Numbering (EAN) Japan Article Numbering (JAN)			*Enter 1 for On and 0 for Off.*			
Enable EAN-8/JAN-8	39	On/Off	On *or* Off	Off	On	On
Enable EAN-13/JAN-13	3A	On/Off	On *or* Off	Off	On	On
Convert EAN-13 to ISBN	3B	On/Off	On *or* Off	Off	Off	Off
Send EAN/JAN checksum	3F	On/Off	On *or* Off	Off	Off	Off
UPC, EAN, JAN Extensions			*Enter 1 for On and 0 for Off.*			
Allow 2-digit extensions	3C	On/Off	On *or* Off	Off	On	On
Allow 5-digit extensions	3D	On/Off	On *or* Off	Off	On	On
Require extensions	3E	On/Off	On *or* Off	Off	Off	Off
Code 128			*Enter 1 for On and 0 for Off.*			
Enable	40	On/Off	On *or* Off	Off	On	On
Minimum length	41	Value	01–50	01	01	02
Maximum length	42	Value	01–50	01	50	20
Enable UCC128	43	On/Off	On *or* Off	Off	Off	Off

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Labelcode 4/5			*Enter 1 for On and 0 for Off.*			
Enable	52	On/Off	On *or* Off	Off	On	Off
Convert	53	On/Off	On *or* Off	Off	Off	Off
Other Controls			*Enter 1 for On and 0 for Off.*			
Menu programming mode	B0	Value	00 = Off 01 = Serial batch 02 = Menu 03 = Both	03	03	03
Autoterminator	B1	Value	*Any single ASCII character (00 = Off)*	(CR)	(CR)	(CR)
ASCII capital to lowercase	B2	On/Off	On *or* Off	Off	Off	Off
Intercharacter delay	B3	Value	00–99 *(milliseconds)*	00	00	00
CCD/laser redundancy	B4	On/Off	On *or* Off	Off	Off	Off
Send assigned symbology identifiers*	B5	On/Off	On *or* Off	Off	On	Off
**A = UPC-A B = I 2 of 5 C = Code 39 D = M 2 of 5 E = UPC-E F = S 2 of 5 G = EAN-8 H = MSI I = Codabar/Ames J = Code 11 K = Code 128 M = EAN-13 N = Labelcode 4/5*						
Bar code preamble	B6	String	†	//	§	//
Bar code postamble	B7	String	†	//	**	//

†Any supported keyboard keys, up to the maximum length supported by available total memory (about 80 characters)
§CODEID // (includes a space after CODEID)
*** PERCON// (includes a space before PERCON)*

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Other Controls *(continued)*			*Enter 1 for On and 0 for Off.*			
Good-read tone	B8	Value	00 = 3600 Hz 01 = 3840 Hz 02 = 4114 Hz 03 = 4430 Hz 04 = 2400 Hz 05 = 2618 Hz 06 = 2880 Hz 07 = 3200 Hz	04	04	04
Good-read number of beeps	B9	Value	01–04	01	01	01
Good-read beep duration	BA	Value	00 = 0.07 sec. 01 = 0.13 sec. 02 = 0.18 sec. 03 = 0.36 sec.	00	00	00
End-of-transmission beep	BB	On/Off	On *or* Off	Off	On	Off
Beeper volume	BC	Value	00 = Off 01 = Low 02 = Medium 03 = High	03	03	03
Interfunction delay	BE	Value	00–99 *(milliseconds)*	00	00	00
Use numeric keypad	BF	On/Off	On *or* Off	Off	Off	Off
Strip Motorola data identifiers	D3	On/Off	On *or* Off	Off	Off	Off

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Other Controls *(continued)*			*Enter 1 for On and 0 for Off.*			
Trigger modes for wedge mode (not used in wand emulation mode)	D4	Value	00 = Normal 01 = Autoscan 02 = Multiscan	00	00	00
Timing speed for wand emulation mode (C0=03)	D4	Value	00 = 500 µS 01 = 300 µS 02 = 200 µS	00	00	00
Require keyboard	D5	On/Off	On *or* Off	On	On	On
Autoscan timeout for wedge mode (not used in wand emulation mode)	D6	Value	01–99 *(minutes)* 00 = 256 min.	30	30	30
Idle mode timeout	D6	Value	01–99 *(seconds)* 00 = Off	30	30	30
CTRL out at power-up	D7	On/Off	On = High Off = Low	On	On	On

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Other Controls *(continued)*				*Enter 1 for On and 0 for Off.*		
Host device	C0	Value	*	*None*	*None*	*None*

**00 = IBM PC/XT (international keyboard)*
01 = IBM AT, PS/2 30-286, 50, 50Z, 60, 70, 80, 90, 95 (international keyboard)
02 = IBM PS/2 25, 30 (international keyboard)
Note: Settings 00–02 work with DOS only. They transmit the ASCII character set and are not full-keyboard compatible.
03 = Wand emulation mode
10 = IBM PC/XT (U.S. keyboard)
11 = IBM AT, PS/2 30-286, 50, 50Z, 60, 70, 80, 90, 95 (U.S. keyboard); ADDS; IDEA 276, 277, 486, 487; I/O CORP 2476; NCR 2900
12 = IBM PS/2 25, 30 (U.S. keyboard)
15 = IBM and Telex terminals (102-key keyboard)
17 = IBM and Telex terminals (122-key keyboard); Decision Data models 3496 and 3781
21 = Macintosh ADB (U.S. keyboard)
25 = Data General D213, D413
32 = TeleVideo
40 = DEC
42 = NEC PowerMate
Note: The host devices listed above were supported at the time this user's guide was printed. Additional devices may also be supported. For current information, please contact your dealer or Percon Technical Support (see page 79).

TABLE A-4
Serial Parameters

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Default (C8)
Serial Parameters			*Enter 1 for On and 0 for Off.*	
Data type	C0	Value	50 = ASCII 51 = PC scan codes	50
Baud rate	C1	Value	00 = 300 01 = 600 02 = 1200 03 = 2400 04 = 4800 05 = 9600 06 = 19200 07 = 38400 08 = 57600	05
Data bits	C2	Value	07 = 7 Bits 08 = 8 Bits	08
Parity	C3	Value	00 = None 01 = Mark 02 = Space 03 = Odd 04 = Even	00
Stop bits	C4	Value	01 = 1 Bit 02 = 2 Bits	01
Xon/Xoff handshaking	C5	On/Off	On *or* Off	Off
Predefined serial defaults	C8			
Protocol	CA	Value	00 = EOR only 01 = ACK/NAK	00
End-of-record (EOR) character	CC	Value	*Any single ASCII character*	(CR)

table continues

Code Parameter	I.D. #	Type	Acceptable Input	Predefined Default (C8)
Serial Parameters *(continued)*			*Enter 1 for On and 0 for Off.*	
Timeout	CD	Value	01–99* 00 = 2.55 sec.	03
Require host response (laser models only)	CE	On/Off	On *or* Off	Off
Use host-controlled indicators (laser models only)	CF	On/Off	On *or* Off	Off
**10-millisecond increments; the default setting (03) means 30 milliseconds*				

APPENDIX B

Full Keyboard Support

About Keyboard Equivalents

Some of the values listed in the ASCII column of the tables (for example, 03 for Caps Lock) are not really ASCII values. They are, however, the values you should use for programming the keys.

Full ASCII mode for Code 39 must be enabled in the SnapShot for batch programming.

Be sure to include the parentheses when you enter mnemonics.

Almost every key on your keyboard—including nonprinting keys, such as PgDn and Ctrl—can be programmed into your Percon SnapShot. The tables in this chapter list ASCII values, "mnemonic" values, and Code 39 equivalents for programming all keyboard keys.

Use the ASCII values whenever you program your SnapShot with the menu method. For example, to turn on the caps lock key (value 03 from table B-2) through menu programming, you would scan the bar codes for 0 and 3.

Use the *Code 39* values to create bar codes for batch programming or to include lowercase or nonalphanumeric characters in a bar code. For example, to include an exclamation mark (**!**) in a bar code, you would encode it as **/A** (slash capital *a*).

Use *mnemonics* for on-screen and serial batch programming. For example, to encode the Enter key, you would type **(CR)**.

Some keys act immediately when read into the SnapShot. For example, the SnapShot transmits the page-down command to the computer as soon as it reads a bar code containing the characters **%U$Z**.

Other keys are not quite so simple. For example, the Ctrl key has to be "turned" on and off. When you type Ctrl+C, for instance, you hold the Ctrl key down while you press C, and then you release the Ctrl key. Three signals are sent to the host device: Ctrl key on (down), C, Ctrl key off (up). This is the way you need to think when encoding Ctrl, Alt, Shift, and other keys requiring a key to be held down while another is pressed. To include the Ctrl+C keystroke combination in a batch bar code, you would encode **RCS**. For on-screen programming for an IBM PC keyboard, you would need to enter **(XC1)C(XC0)**. The ASCII equivalent for menu programming is **124313**.

The zap character does not eliminate preambles or postambles.

Including a function key in a bar code can present a problem if your SnapShot is programmed to follow every bar code transmission with an autoterminator character. You can eliminate the autoterminator by including the "zap" character, **$Z**, in any bar code that you do *not* want followed by the autoterminator. For example, you would encode **%UAZ** to send function key F1 with no autoterminator after it.

Table B-1 lists the equivalents for keys that are common to many keyboards. For encoding special keys from a specific keyboard, see the appropriate table from the following list:

Computer or Terminal	Table	Page
ADDS	B-2	60
DEC	B-5	65
Decision Data	B-6	68
IBM PCs and compatibles	B-2	60
IBM terminals	B-6	68
Macintosh	B-3	62
NCR 2900	B-2	60
NEC PowerMate	B-2	60
TeleVideo	B-4	63
Telex	B-6	68

For information about IBM terminals and illustrations of IBM keyboards, see the section beginning on page 66.

TABLE B-1
Common Keyboard Keys

Key	Code 39	ASCII Value	Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
SP	space	20	A	A	41	a	+A	61
!	/A	21	B	B	42	b	+B	62
"	/B	22	C	C	43	c	+C	63
#	/C	23	D	D	44	d	+D	64
$	/D	24	E	E	45	e	+E	65
%	/E	25	F	F	46	f	+F	66
&	/F	26	G	G	47	g	+G	67
'	/G	27	H	H	48	h	+H	68
(*	/H	28	I	I	49	i	+I	69
)†	/I	29	J	J	4A	j	+J	6A
*	/J	2A	K	K	4B	k	+K	6B
+	/K	2B	L	L	4C	l	+L	6C
,	/L	2C	M	M	4D	m	+M	6D
-	- *or* /M	2D	N	N	4E	n	+N	6E
.	. *or* /N	2E	O	O	4F	o	+O	6F
/	/O	2F	P	P	50	p	+P	70
0	0 *or* /P	30	Q	Q	51	q	+Q	71
1	1 *or* /Q	31	R	R	52	r	+R	72
2	2 *or* /R	32	S	S	53	s	+S	73
3	3 *or* /S	33	T	T	54	t	+T	74
4	4 *or* /T	34	U	U	55	u	+U	75
5	5 *or* /U	35	V	V	56	v	+V	76
6	6 *or* /V	36	W	W	57	w	+W	77
7	7 *or* /W	37	X	X	58	x	+X	78
8	8 *or* /X	38	Y	Y	59	y	+Y	79
9	9 *or* /Y	39	Z	Z	5A	z	+Z	7A

table continues

Key	Code 39	ASCII Value	Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
:	/Z	3A	@	%V	40	`	%W	60
;	%F	3B	[	%K	5B	{	%P	61
<	%G	3C	\	%L	5C	|	%Q	7C
=	%H	3D	]	%M	5D	}	%R	7D
>	%I	3E	^	%N	5E	~	%S	7E
?	%J	3F	_	%O	5F	Delete	%T	7F
Zap[§]	$Z	1A						

*When used as a string value in on-screen programming, must be entered as (( )
[†]When used as a string value in on-screen programming, must be entered as ( ))
[§]Not an actual key; see information about the "zap" character on page 58

TABLE B-2 IBM (or Compatible) PC and NEC PowerMate Keyboard Keys

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
F1	(X16)	%U$A	8001	↑	(UP)	%U%A	801B
F2	(X17)	%U$B	8002	↓	(DOWN)	%U%B	801C
F3	(X18)	%U$C	8003	←	(LEFT)	%U%C	801D
F4	(X19)	%U$D	8004	→	(RIGHT)	%U%D	801E
F5	(X20)	%U$E	8005	Caps Lock	(X3)	$C	03
F6	(X21)	%U$F	8006	Num Lock	(X4)	$D	04
F7	(X22)	%U$G	8007	Scroll Lock	(X5)	$E	05
F8	(X23)	%U$H	8008	Horizontal Tab	(TABR)	$I	09
F9	(X24)	%U$I	8009	Vertical Tab	(X10)	$K	0B
F10	(X25)	%U$J	800A	Enter	(CR)	$M	0D
F11	(X26)	%U$K	800B	Alt Off	(XA0)	$N	0E
F12	(X27)	%U$L	800C	Alt On	(XA1)	$O	0F

table continues

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	Code 39	ASCII Value
Insert	(X36)	%U$U	8015	Left Ctrl On	(XC1)	$S	13
Home	(X37)	%U$V	8016	Left Ctrl Off	(XC0)	$R	12
Page Up	(X38)	%U$W	8017	Right Ctrl On	(X511)	%U$P	8010
Delete	(X39)	%U$X	8018	Right Ctrl Off	(X510)	%U$O	800F
End	(X40)	%U$Y	8019	Shift Off	(XE0)	$V	16
Page Down	(X41)	%U$Z	801A	Shift On	(XE1)	$W	17
Backspace	(X8)	$H	08	Esc	(X11)	%A	1B
Numeric Keypad							
Enter	(Enter)	%U%E	801F	3	(NP3)	%U3	8033
	(X52)	%U/J	802A	4	(NP4)	%U4	8034
+	(X53)	%U/K	802B	5	(NP5)	%U5	8035
-	(X55)	%U-	802D	6	(NP6)	%U6	8036
/	(X57)	%U/O	802F	7	(NP7)	%U7	8037
0	(NP0)	%U0	8030	8	(NP8)	%U8	8038
1	(NP1)	%U1	8031	9	(NP9)	%U9	8039
2	(NP2)	%U2	8032				

TABLE B-3 Macintosh Keyboard Keys

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
F1	(X16)	%U$A	8001	End	(X40)	%U$Y	8019
F2	(X17)	%U$B	8002	Page Down	(X41)	%U$Z	801A
F3	(X18)	%U$C	8003	↑	(UP)	%U%A	801B
F4	(X19)	%U$D	8004	↓	(DOWN)	%U%B	801C
F5	(X20)	%U$E	8005	←	(LEFT)	%U%C	801D
F6	(X21)	%U$F	8006	→	(RIGHT)	%U%D	801E
F7	(X22)	%U$G	8007	Tab	(TABR)	$I	09
F8	(X23)	%U$H	8008	Return	(CR)	$M	0D
F9	(X24)	%U$I	8009	⌘	(XB0)	$P	10
F10	(X25)	%U$J	800A	Apple	(XB1)	$Q	11
F11	(X26)	%U$K	800B	Control	(XC0)	$R	12
F12	(X27)	%U$L	800C	Control	(XC1)	$S	13
F13	(X28)	%U$M	800D	Option	(XD0)	$T	14
F14	(X29)	%U$N	800E	Option	(XD1)	$U	15
F15	(X30)	%U$O	800F	Shift	(XE0)	$V	16
Help	(X36)	%U$U	8015	Shift	(XE1)	$W	17
Home	(X37)	%U$V	8016	Caps Lock	(XF0)	$X	18
Page Up	(X38)	%U$W	8017	Caps Lock	(XF1)	$Y	19
Delete	(X39)	%U$X	8018	Esc	(X11)	%A	1B

table continues

TABLE B-4
TeleVideo Keyboard Keys

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
Numeric Keypad							
Enter	(ENTER)	%U%E	801F	3	(NP3)	%U3	8033
*	(X52)	%U/J	802A	4	(NP4)	%U4	8034
+	(X53)	%U/K	802B	5	(NP5)	%U5	8035
-	(X55)	%U-	802D	6	(NP6)	%U6	8036
/	(X57)	%U/O	802F	7	(NP7)	%U7	8037
0	(NP0)	%U0	8030	8	(NP8)	%U8	8038
1	(NP1)	%U1	8031	9	(NP9)	%U9	8039
2	(NP2)	$U2	8032				

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
F1	(X16)	%U$A	8001	FUNCT	(XF0)	$X	18
F2	(X17)	%U$B	8002	FUNCT	(XF1)	$Y	19
F3	(X18)	%U$C	8003	TAB	(TABR)	$I	09
F4	(X19)	%U$D	8004	←TAB	(X10)	$K	0B
F5	(X20)	%U$E	8005	Enter	(CR)	$M	0D
F6	(X21)	%U$F	8006	ESC	(X11)	%A	1B
F7	(X22)	%U$G	8007	CHAR INSERT	(X43)	%U/A	8021
F8	(X23)	%U$H	8008	LINE INSERT	(X44)	%U/B	8022
F9	(X24)	%U$I	8009	LINE ERASE	(X45)	%U/C	8023
F10	(X25)	%U$J	800A	NO SCROLL	(X46)	%U/D	8024

table continues

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	Code 39	ASCII Value
F11	X26)	%U$K	800B	SEND	(X47)	%U/E	8025
F12	(X27)	%U$L	800C	CHAR DELETE	(X48)	%U/F	8026
F13	(X28)	%U$M	800D	LINE DELETE	(X49)	%U/G	8027
F14	(X29)	%U$N	800E	PAGE ERASE	(X50)	%U/H	8028
F15	(X30)	%U$O	800F	PAGE	(X51)	%U/I	8029
F16	(X31)	%U$P	8010	LINE FEED	(X58)	%U/Z	803A
BACKSPACE	(X8)	$H	08	CLEAR SPACE	(X59)	%U%F	803B
↑	(UP)	%U%A	801B	BREAK	(X60)	%U%G	803C
↓	(DOWN)	%U%B	801C	CE	(X61)	%U%H	803D
←	(LEFT)	%U%C	801D	PRINT	(X62)	%U%I	803E
→	(RIGHT)	%U%D	801E				
Numeric Keypad							
=	(X54)	%U/L	802C	3	(NP3)	%U3	8033
-	(X55)	%U/M	802D	4	(NP4)	%U4	8034
.	(X56)	%U/N	802E	5	(NP5)	%U5	8035
00	(X15)	%U%J	803F	6	(NP6)	%U6	8036
0	(NP0)	%U0	8030	7	(NP7)	%U7	8037
1	(NP1)	%U1	8031	8	(NP8)	%U8	8038
2	(NP2)	$U2	8032	9	(NP9)	%U9	8039

TABLE B-5
DEC Keyboard Keys

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
F1	(X16)	%U$A	8001	Prev Screen	(X38)	%U$W	8017
F2	(X17)	%U$B	8002	Next Screen	(X41)	%U$W	801A
F3	(X18)	%U$C	8003	Lock	(X3)	$C	03
F4	(X19)	%U$D	8004	Num Lock	(X4)	$D	04
F5	(X20)	%U$E	8005	Scroll Lock	(X5)	$E	05
F6	(X21)	%U$F	8006	Backspace	(X8)	$H	08
F7	(X22)	%U$G	8007	Tab	(TABR)	$I	09
F8	(X23)	%U$H	8008	Enter	(CR)	$M	0D
F9	(X24)	%U$I	8009	Esc	(X11)	%A	1B
F10	(X25)	%U$J	800A	Insert Here	(X36)	%U$U	8015
F11	(X26)	%U$K	800B	Remove	(X39)	%U$X	8018
F12	(X27)	%U$L	800C	Ctrl Off	(XC0)	$R	12
F13	(X28)	%U$M	800D	Ctrl On	(XC1)	$S	13
F14	(X29)	%U$N	800E	Shift Off	(XE0)	$V	16
F15	(X30)	%U$O	800F	Shift On	(XE1)	$W	17
F16	(X31)	%U$P	8010	Help	(X43)	%U/A	8021
F17	(X32)	%U$Q	8011	Do	(X44)	%U/B	8022
F18	(X33)	%U$R	8012	Find	(X45)	%U/C	8023
F19	(X34)	%U$S	8013	PF1	(X46)	%U/D	8024
F20	(X35)	%U$T	8014	PF2	(X47)	%U/E	8025
↑	(UP)	%U%A	801B	PF3	(X48)	%U/F	8026
↓	(DOWN)	%U%B	801C	PF4	(X49)	%U/G	8027
←	(LEFT)	%U%C	801D	Select	(X50)	%U/H	8028
→	(RIGHT)	%U%D	801E	Compose Character	(X51)	%U/I	8029

table continues

Key	Mnemonic	Code 39	ASCII Value	Key	Mnemonic	Code 39	ASCII Value
Numeric Keypad							
,	(X54)	%U/L	802C	4	(NP4)	%U4	8034
-	(X55)	%U-	802D	5	(NP5)	%U5	8035
.	(X56)	%U/N	802E	6	(NP6)	%U6	8036
0	(NP0)	%U0	8030	7	(NP7)	%U7	8037
1	(NP1)	%U1	8031	8	(NP8)	%U8	8038
2	(NP2)	$U2	8032	9	(NP9)	$U9	8039
3	(NP3)	%U3	8033				

IBM Terminals

Several models of IBM terminals support more than one type of keyboard. Some key definitions depend on the keyboard, while others are the same for all keyboards. Figures B-1 and B-2 show the layouts of two IBM-terminal keyboards.

To encode a key on your keyboard, find the key in the appropriate figure. Keys that are common to both keyboards appear with their normal labels; see table B-1 for the Code 39 and ASCII equivalents for these keys. Keyboard-specific keys in the figures begin with an X (for example, X11) or have a mnemonic label; to encode those keys, see table B-6.

NOTE *Mnemonic keys (XA)–(XF) are "on/off" keys. For example, to encode an* Alt+B *keystroke combination, you need to turn* Alt *on by entering (XA1) before the* B *and then turn it off afterward with (XA0).*

FIGURE B-1
IBM 102-key keyboard

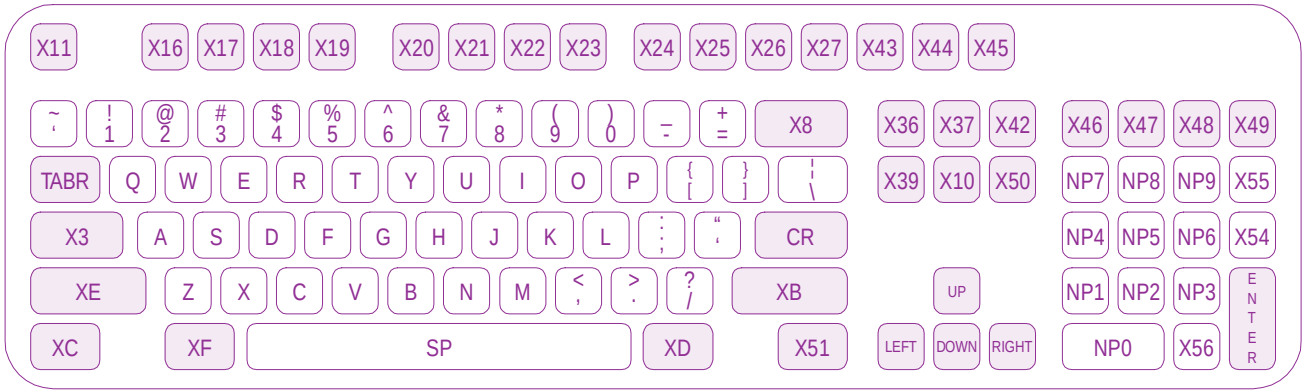


FIGURE B-2
IBM 122-key keyboard

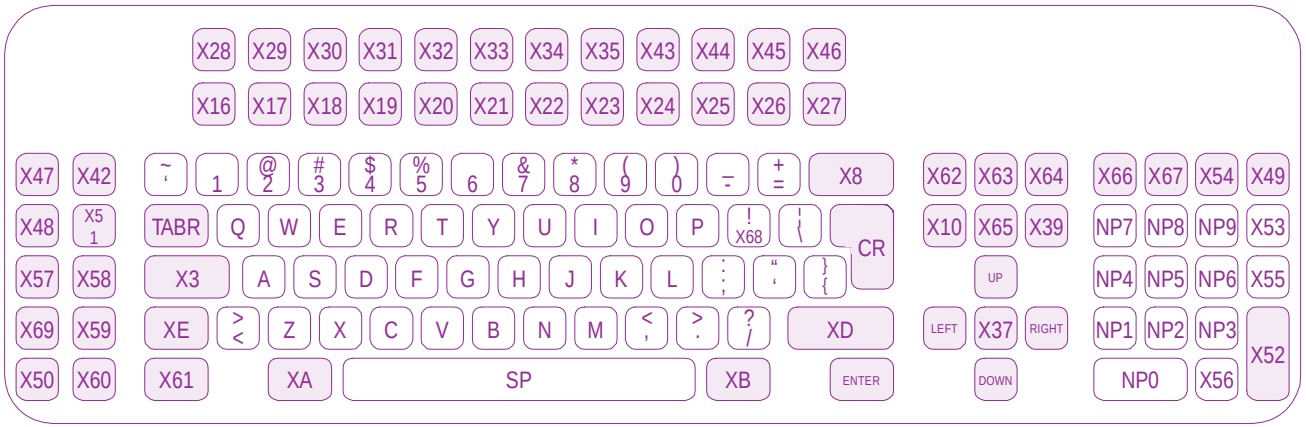


TABLE B-6
IBM Terminal Keyboard Keys

Mne-monic	Code 39	ASCII Value	Mne-monic	Code 39	ASCII Value	Mne-monic	Code 39	ASCII Value
(TABR)	$I	09	(X13)	%C	1D	(X43)	%U/A	8021
(CR)	$M	0D	(X14)	%D	1E	(X44)	%U/B	8022
(Enter)	%U%E	801F	(X15)	%E	1F	(X45)	%U/C	8023
(UP)	%U%A	801B	(X16)	%U$A	8001	(X46)	%U/D	8024
(DOWN)	%U%B	801C	(X17)	%U$B	8002	(X47)	%U/E	8025
(LEFT)	%U%C	801D	(X18)	%U$C	8003	(X48)	%U/F	8026
(RIGHT)	%U%D	801E	(X19)	%U$D	8004	(X49)	%U/G	8027
(XA0)	$N	0E	(X20)	%U$E	8005	(X50)	%U/H	8028
(XA1)	$O	0F	(X21)	%U$F	8006	(X51)	%U/I	8029
(XB0)	$P	10	(X22)	%U$G	8007	(X52)	%U/J	802A
(XB1)	$Q	11	(X23)	%U$H	8008	(X53)	%U/K	802B
(XC0)	$R	12	(X24)	%U$I	8009	(X54)	%U/L	802C
(XC1)	$S	13	(X25)	%U$J	800A	(X55)	%U/M	802D
(XD0)	$T	14	(X26)	%U$K	800B	(X56)	%U/N	802E
(XD1)	$U	15	(X27)	%U$L	800C	(X57)	%U/O	802F
(XE0)	$V	16	(X28)	%U$M	800D	(X58)	%U/Z	803A
(XE1)	$W	17	(X29)	%U$N	800E	(X59)	%U%F	803B
(XF0)	$X	18	(X30)	%U$O	800F	(X60)	%U%G	803C
(XF1)	$Y	19	(X31)	%U$P	8010	(X61)	%U%H	803D
(X1)	$A	01	(X32)	%U$Q	8011	(X62)	%U%I	803E
(X2)	$B	02	(X33)	%U$R	8012	(X63)	%U%J	803F
(X3)	$C	03	(X34)	%U$S	8013	(X64)	%U%V	8040
(X4)	$D	04	(X35)	%U$T	8014	(X65)	%UA	8041
(X5)	$E	05	(X36)	%U$U	8015	(X66)	%UB	8042
(X6)	$F	06	(X37)	%U$V	8016	(X67)	%UC	8043

table continues

Mnemonic	Code 39	ASCII Value	Mnemonic	Code 39	ASCII Value	Mnemonic	Code 39	ASCII Value
(X7)	$G	07	(X38)	%U$W	8017	(X68)	%UD	8044
(X8)	$H	08	(X39)	%U$X	8018	(X69)	%UE	8045
(X9)	$J	0A	(X40)	%U$Y	8019	(X70)	%UF	8046
(X10)	$K	0B	(X41)	%U$Z	801A	(X71)	%UH	8047
(X11)	%A	1B	(X42)	%USP	8020	(X72)	%U$U	8048
(X12)	%B	1C						

Numeric Keypad

Mnemonic	Code 39	ASCII Value		Mnemonic	Code 39	ASCII Value
(NP0)	%U0 *or* %U/P	8030		(NP5)	%U5 *or* %U/U	8035
(NP1)	%U1 *or* %U/Q	8031		(NP6)	%U6 *or* %U/V	8036
(NP2)	%U2 *or* %U/R	8032		(NP7)	%U7 *or* %U/S	8037
(NP3)	%U3 *or* %U/S	8033		(NP8)	%U8 *or* %U/X	8038
(NP4)	%U4 *or* %U/T	8034		(NP9)	%U9 *or* %U/Y	8039

APPENDIX

Safety Information, Product Labeling, and Cable Configurations

FCC Information

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.

Product Labeling

FIGURE C-1
Labels providing safety and product-identification information

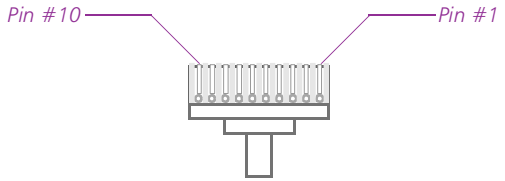
Advisory Statement

CAUTION: Use of controls, adjustments, or performance of procedures other than those specified herein may result in hazardous visible or invisible laser light exposure.

Connector Configurations

FIGURE C-2
RJ connector at end of SnapShot cable

10-Pin RJ Connector



Pin	Function	Direction
1	HSOUT / CTLOUT	Out
2	KB DATA	In/Out
3	CPU CLOCK	In/Out
4	GND	
5	HS IN	In
6	RxD	In
7	KB CLOCK	In/Out
8	+5v	
9	CPU DATA / TAPIN	In/Out
10	TxD / FRKOUT	In/Out

9-Pin RS-232 Connector

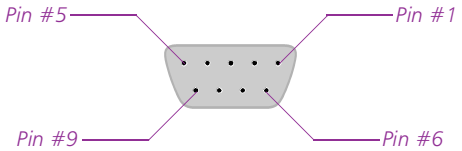


FIGURE C-3
Female serial connector at end of Snapshot cable

Pin	Function
2	TxD
3	RxD
5	GND
7	HS IN
8	HS OUT

25-Pin RS-232 Connector

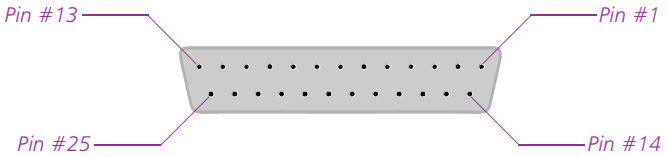


FIGURE C-4
Female serial connector at end of SnapShot cable

Pin	Function
2	RxD
3	TxD
4	HS IN
5	HS OUT
7	GND

25-Pin Adapter

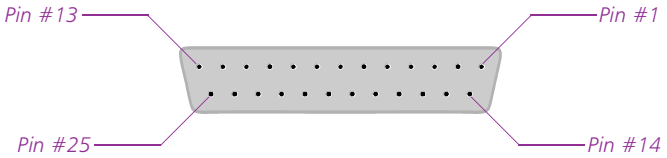


FIGURE C-5
Female serial connector at end of Percon adapter cable

Pin	Function
7	KEYBOARD WEDGE INTERFACE
8	KEYBOARD WEDGE INTERFACE
9	KEYBOARD WEDGE INTERFACE
10	KEYBOARD WEDGE INTERFACE
11	SERIAL HS IN
12	KEYBOARD WEDGE INTERFACE
13	KEYBOARD WEDGE INTERFACE
14	GND
19	SERIAL HS OUT
20	SERIAL RxD
21	SERIAL TxD
22	SERIAL TAP IN
23	+5 IN
24	+12 IN
25	GND

Warranty and Technical Support

Warranty

The Percon SnapShot is warranted by Percon against defects in materials and workmanship for one (1) year from the date of shipment by Percon. During its warranty period, we will repair or, at our option, replace at no charge any Percon product that proves to be defective, provided you return the product, shipping prepaid, to Percon. (For information on returning the product, see "Return Information" on page 78.)

This warranty does not apply if the product has been damaged by accident or misuse or as the result of service or modification by other than Percon authorized personnel.

No other express warranty is given. The replacement of a product is your exclusive remedy. Any other implied warranty of merchantability or fitness is limited to the duration of this written warranty. Some states, provinces, and countries don't allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

In no event shall Percon be liable for consequential damages. Some states, provinces, and countries do not allow the exclusion or limitation of incidental or consequential damages, and so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state, province to province, or country to country.

Products are sold on the basis of specifications applicable at the time of manufacture. Percon shall have no obligation to modify or update products once sold.

Return Information

If you have a problem with a Percon product, contact your Percon dealer first. Your dealer may tell you to return the product to Percon. If so, contact Percon's Technical Support department at 541-344-1189 for instructions and a return-authorization (R/A) number. You pay shipping to us; we pay return shipping. Percon will repair or replace the product and pay to ship it back to you via FedEx Economy or an equivalent manner at an equivalent price. If you wish, you may pay for a shipping upgrade.

Please be prepared to provide the following information when you call for an R/A number:

- ❑ "Ship to" company, address, contact person, and telephone number
- ❑ "Bill to" company, address, contact person, and telephone number (if different)
- ❑ Model and serial number of product
- ❑ Description of problem (as complete as possible)

Ship the product *prepaid* to:

R/A Number: _____
Percon Repair Department
1720 Willow Creek Circle, Suite 530
Eugene, OR 97402-9171 USA

When returning the product, please include any information you can provide about the exact nature of the problem. This may speed the diagnostic and repair process. Also include a copy of the original invoice. It will help resolve any questions about warranty coverage.

If you are not using the original shipping container when returning a Percon product, please be sure that there is at least four inches of packing material between each side of the unit and its shipping container. For your own protection, we recommend you insure any equipment being sent to Percon.

Make a note of your R/A number and product serial number in your records for future reference.

Technical Support

If you have a question or problem with a Percon product, you can get free technical assistance from Percon's Technical Support department. To contact Technical Support, call 541-344-1189 between 7 A.M. and 5 P.M. Pacific time, Monday through Friday.

If you prefer to correspond by letter, you can send e-mail to tech@percon.com, fax the Technical Support department at 541-344-1399, or write to

Percon, Inc.
Technical Support Dept.
1720 Willow Creek Circle, Suite 530
Eugene, OR 97402-9171

APPENDIX E

Bar Codes for Programming the Percon SnapShot

This chapter provides bar codes for common parameter settings for the Percon SnapShot. Factory default settings (D2) are underlined. If you need to make settings that are not provided in this chapter, see chapter 3 for information.

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Predefined Defaults

DO

D1

D2

Serial defaults

Auto-Learn

Start

Save and Exit

Scan this twice:

Exit without Saving

Scan this first:

Then scan this:

Code 39

ENABLE

On

Off

MINIMUM LENGTH

00

10

20

30

40

50

60

MAXIMUM LENGTH

10

20

30

40

50

60

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

FULL ASCII MODE

On

Off

Interleaved 2 of 5

ENABLE

On

Off

MINIMUM LENGTH

2

6

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

REQUIRED LENGTH

(no default; overrides minimum and maximum settings)

2

4

6

8

10

12

14

16

18

20

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

USE LENGTHS 6 AND 14 ONLY *(case code)*

On

Off

Matrix 2 of 5

ENABLE

On

Off

MINIMUM LENGTH

06

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

Standard 2 of 5

ENABLE

On

Off

MINIMUM LENGTH

06

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

USE 2-BAR START/STOP

On

Off

Code 11

ENABLE

On

Off

MINIMUM LENGTH

4

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

REQUIRE 2 CHECKSUMS

On

Off

SEND CHECKSUM(S)

On

Off

Codabar/Ames

ENABLE

On

Off

MINIMUM LENGTH

04

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

SEND STOP/START

On

Off

CODABAR-TO-CLSI CONVERSION

On

Off

WIDE INTERCHARACTER GAPS ALLOWED

On

Off

MSI

ENABLE

On

Off

MINIMUM LENGTH

1

4

7

10

12

14

MAXIMUM LENGTH

1

4

7

10

12

14

REQUIRE 2 CHECKSUMS

On

Off

2ND CHECKSUM MOD 11

On

Off

SEND CHECKSUM(S)

On

Off

Code 128

ENABLE

On

Off

MINIMUM LENGTH

2

10

20

30

40

50

MAXIMUM LENGTH

10

20

30

40

50

ENABLE UCC128

On

Off

Labelcode 4/5

ENABLE

On

Off

CONVERT

On

Off

UPC-A

ENABLE UPC-A

On

Off

SEND SYSTEM DIGIT

On

Off

SEND CHECKSUM

On

Off

CONVERT UPC-A TO EAN-13

On

Off

UPC-E

USE SYSTEM DIGIT 0

On

Off

USE SYSTEM DIGIT 1

On

Off

CONVERT UPC-E TO UPC-A

On

Off

SEND SYSTEM DIGIT

On

Off

SEND CHECKSUM

On

Off

EAN/JAN

ENABLE EAN-8/JAN-8

On

Off

ENABLE EAN-13/JAN-13

On

Off

CONVERT EAN-13 TO ISBN

On

Off

SEND EAN/JAN CHECKSUM

On

Off

REQUIRE EXTENSIONS

On

Off

UPC/EAN/JAN Extensions

ALLOW 2-DIGIT EXTENSIONS

On

Off

ALLOW 5-DIGIT EXTENSIONS

On

Off

Other Controls

MENU PROGRAMMING MODE

Off

Serial batch

Menu

Both

AUTOTERMINATOR

(CR)

(TAB)

None

ASCII UPPERCASE TO LOWERCASE CONVERSION

On

Off

INTERCHARACTER DELAY *(in milliseconds)*

0

5

10

20

40

CCD/LASER REDUNDANCY

On

Off

SEND SYMBOLOGY IDENTIFIER

On

Off

GOOD-READ TONE

2400 Hz

3200 Hz

3600 Hz

4430 Hz

GOOD-READ BEEPS

1

2

3

4

GOOD-READ BEEP DURATION *(in seconds)*

0.07

0.13

0.18

0.36

END-OF-TRANSMISSION BEEP

On

Off

BEEPER VOLUME

Off

Low

Medium

High

INTERFUNCTION DELAY *(in milliseconds)*

0

5

10

20

40

USE NUMERIC KEYPAD

On

Off

TRIGGER MODES

Normal

Autoscan

Multiscan

TIMING SPEED FOR WAND EMULATION

500 µS

300 µS

200 µS

REQUIRE KEYBOARD

On

Off

AUTOSCAN TIMEOUT

1 min.

5 min.

10 min.

30 min.

60 min.

256 min.

IDLE MODE TIMEOUT

Off

5 sec.

10 sec.

30 sec.

60 sec.

90 sec.

CTRL OUT AT POWER-UP

High

Low

Host Device

PC/XT (International keyboard)

AT; PS/2™ models 30-286, 50, 50Z, 60, 70, 80, 90, and 95 (International keyboard)

PS/2 models 25 and 30 (International keyboard)

Wand emulation mode

PC/XT (U.S. keyboard)

AT; PS/2 models 30-286, 50, 50Z, 60, 70, 80, 90, and 95 (U.S. keyboard); ADDS; IDEA; I/O CORP; NCR

PS/2 models 25 and 30 (U.S. keyboard)

IBM and TELEX terminals (102-key keyboard)

IBM and TELEX terminals (122-key keyboard); Decision Data

Macintosh™ (U.S. keyboard)

Data General

TeleVideo

DEC

NEC PowerMate

Serial Settings

DATA TYPE

ASCII

PC Scan Codes

BAUD RATE

300

600

1200

2400

4800

9600

19200

38400

57600

DATA BITS

7

8

PARITY

None

Mark

Space

Odd

Even

STOP BITS

1

2

XON/XOFF HANDSHAKING

On

Off

PROTOCOL

EOR Only

ACK/NAK

END-OF-RECORD (EOR) CHARACTER

(CR)

(TAB)

None

TIMEOUT *(in milliseconds)*

10

30

100

300

500

800

REQUIRE HOST RESPONSE

On

Off

USE HOST-CONTROLLED INDICATORS

On

Off

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Bar Code Menu

START

ESC

//

A

B

C

D

E

F

OFF

ON

0

1

2

3

4

5

6

7

8

9

PREDEFINED DEFAULTS

D2

C8