PowerWedge 10™
Fixed-Station Decoder

User's Guide

PERCON

Percon PowerWedge 10™ User's Guide
Online Version © 1998

P≡RCON

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Contents

About the PowerWedge 10

The Percon PowerWedge 10™ is a small but powerful fixed-station decoder. It accepts input from a variety of devices, and it recognizes and automatically discriminates among many bar code symbologies.

FIGURE 1-1
The Percon
PowerWedge 10

Connector for host interface cable

Power jack (Serial model only)

On/Off/Program switch

Speaker

Light-emitting diodes (LEDs)

Input connector 2

Input connector 1
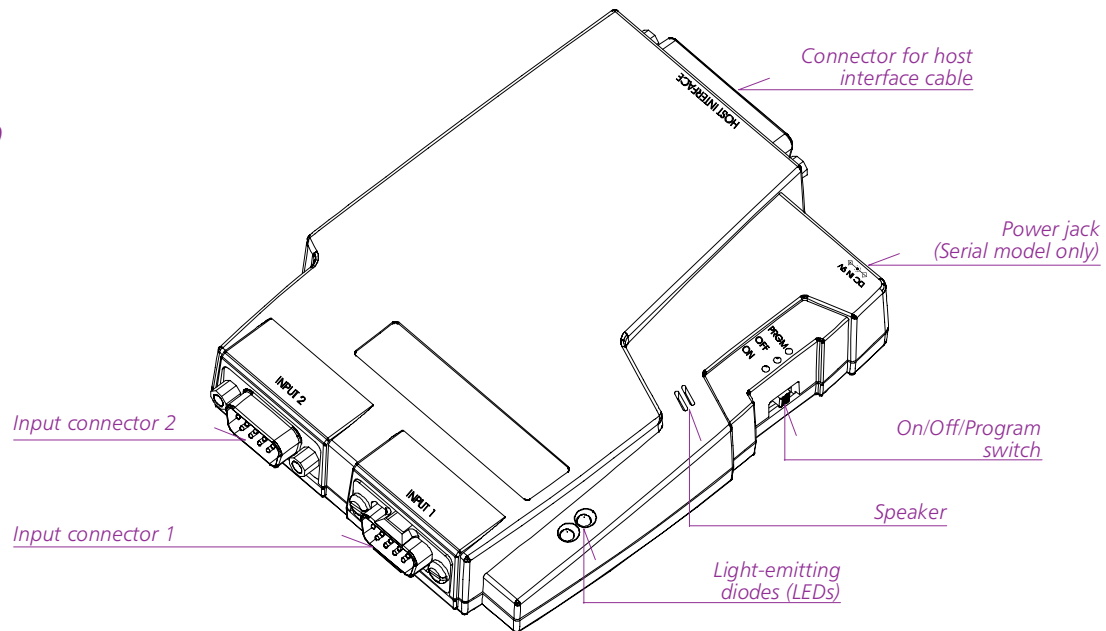
Models

The PowerWedge 10 is available in two models.

PowerWedge 10 Wedge

The PowerWedge 10 wedge model (FD-000-11) is a true keyboard wedge. It sends scanned bar code data to your computer as if it were typed on the keyboard.

For installation information, see chapter 2.

A custom cable lets you install the PowerWedge 10 between a keyboard and computer or terminal in seconds. No additional hardware, software, or power supply is necessary. Power for the decoder is drawn from the host.

PowerWedge 10 Serial

With a stand-alone serial configuration on a DOS-based computer, you can use a software utility named BARCOM to enable the computer to accept serial input as if it were typed on the keyboard. Contact your Percon dealer for information about BARCOM.

The PowerWedge 10 Serial model (FD-000-10) uses a serial interface cable to communicate with a computer or terminal. You can install it in a "stand-alone" configuration (connected directly to a computer) or an "eavesdrop" configuration (between a terminal and the host computer). Power is supplied by a 9-volt DC adapter.

Bar Code Symbologies

The PowerWedge 10 recognizes and decodes the following symbologies:

❑ Codabar/Ames	❑ JAN-8/13
❑ Code 11	❑ Labelcode 4/5
❑ Code 128	❑ Matrix 2 of 5
❑ Code 39, including:	❑ MSI
• Extended ASCII	❑ Standard 2 of 5
• MIL-STD-1189	❑ UPC-A
❑ Code 93	❑ UPC-E
❑ EAN-8/13	❑ UPC/EAN/JAN extensions
❑ Interleaved 2 of 5	

NOTE — The symbologies listed above 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.

Input Devices and Connectors

The PowerWedge 10 decodes input from any of the following devices on input connector 1:

NOTE — For installation information, see chapter 2.

❑ Wands (visible light and infrared)

❑ Handheld laser scanners

❑ Handheld charge-coupled device scanners (CCDs)

❑ Magnetic stripe readers (MSRs)

❑ I.D. badge readers

NOTE — Input connector 1 can also be used for both input and output of cloning data (see page 26).

The second input connector on the PowerWedge 10 accepts input from a magnetic stripe reader. The PowerWedge 10 can read two magnetic stripe tracks simultaneously, and it supports the California driver's license magnetic stripe.

Laser/Input Modes

Bar codes for setting laser/input modes are on page88.

The PowerWedge 10 can operate in any of the following laser/input modes:

Normal Mode

In normal mode, the PowerWedge 10 accepts bar code or magnetic stripe input from all supported types of input devices except serial devices. This is the default setting for the PowerWedge 10's laser/input modes.

Autoscan Mode

Use this mode for stand-mounted lasers. This mode returns the laser to the ready-to-read state immediately after each read.

Multiscan Mode

This mode allows you to scan bar codes without pressing and releasing the trigger for each read. In this mode, the laser or CCD remains in the ready-to-read state for as long as the trigger is held down.

Symbol Blinking Mode

Use this mode for automatic scanning with a Symbol laser mounted on the Symbol IntelliStand.

Installing the PowerWedge 10

The PowerWedge 10 comes in two models (see page 2). The model number is printed on the label on the bottom of the unit. Follow the installation procedure for your model.

The interface cable you need to use with the PowerWedge 10 depends on which model you have 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 more information about cables.)

Keyboard Wedge Installation
(Model FD-000-11)

1. Turn your computer or terminal off, and unplug the keyboard.

2. The largest plug on the Percon cable is labeled with the cable number. Attach that plug to the jack labeled HOST INTERFACE on the PowerWedge 10 (see figure 2-1).

***FIGURE 2-1
Connecting the
PowerWedge 10 Wedge
(drawing not to scale)***

Male plug—connect to keyboard input jack on computer or terminal

Female plug—connect to keyboard cable or port

NOTE *This figure shows cable number 00-001-00. Your computer or terminal may require a different cable.*

3. Attach the small male plug of the Percon cable to the keyboard input jack on the computer or terminal. Attach the female plug of the cable to the keyboard cable or port (see figure 2-1). (For cables with telephone-style connectors, attach the cable plug to the computer or terminal, and plug the jack from the keyboard into the socket on the Percon cable connector.)

4. Plug your bar code scanner into the connector labeled INPUT 1 on the PowerWedge 10 (see figure 1-1 on page 1).

5. Move the switch on the PowerWedge 10 to the ON position.

6. Turn on the computer or terminal. The decoder should beep, and the green LED (light-emitting diode) should light up.

7. Scan the programming bar code for the type of computer or terminal you are using. (The bar codes for host devices are on pages 90–92.)

You can now begin using the PowerWedge 10.

Serial Installation
(Model FD-000-10)

1. Turn your computer or terminal off.

2. One plug on the serial cable is labeled with the cable number. Attach that plug to the connector labeled HOST INTERFACE on the PowerWedge 10 (see figure 2-2).

FIGURE 2-2
Connecting the
PowerWedge 10 Serial decoder
to a stand-alone computer
(drawing not to scale)

Connect to serial port on computer or terminal

This figure shows cable number 00-874-04. Your computer or terminal may require a different cable.

Power adapter
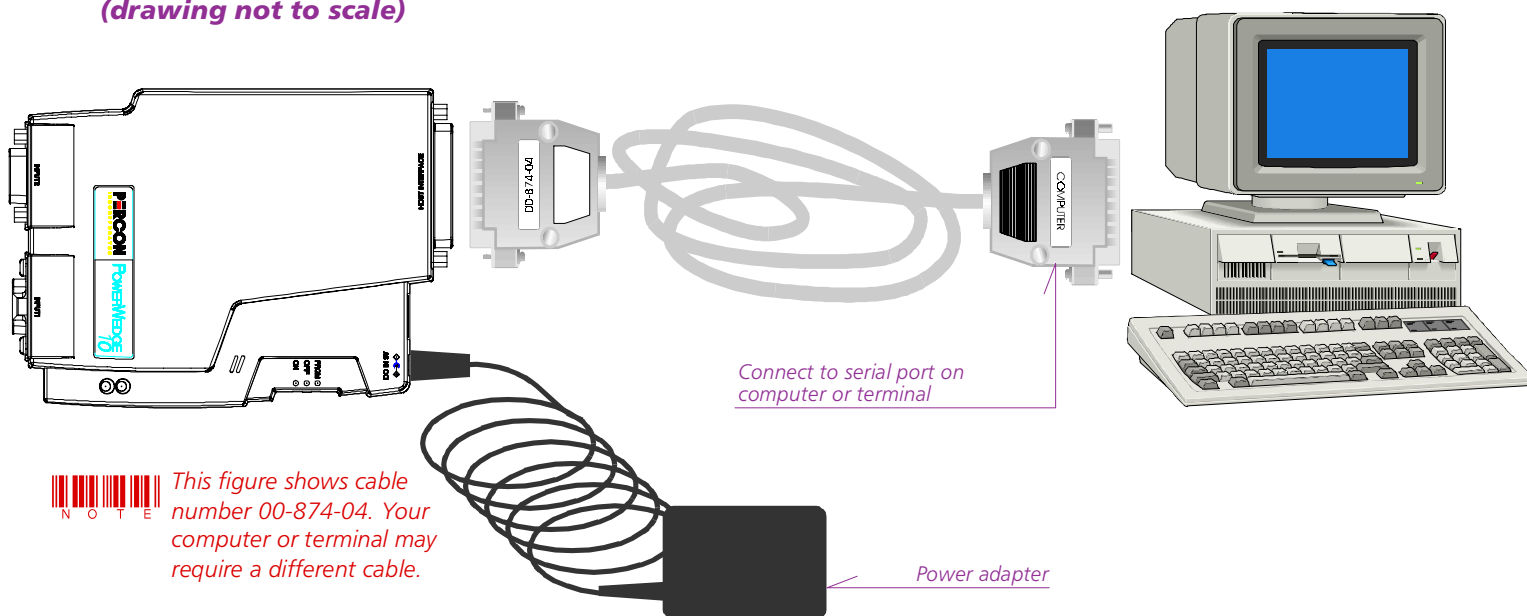
NOTE *On Macintosh computers, attach the smaller cable connector to the modem port. The modem port is marked with the following icon:* ☎

3. **STAND-ALONE CONFIGURATION** Attach the other end of the cable to an available serial port on your computer or terminal (see figure 2-2).

EAVESDROP CONFIGURATION 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 PowerWedge 10 interface cable. Then attach the connector labeled TERMINAL on the PowerWedge 10 cable to the computer or terminal's serial port (see figure 2-3).

FIGURE 2-3
Connecting the PowerWedge 10 Serial decoder to a terminal in a multiuser system
(drawing not to scale)

NOTE *This figure shows cable number 00-876-02. Your computer or terminal may require a different cable.*

Connector labeled **COMPUTER**— attach to cable from host

Power adapter

Connector labeled **TERMINAL**— attach to serial port on terminal or computer
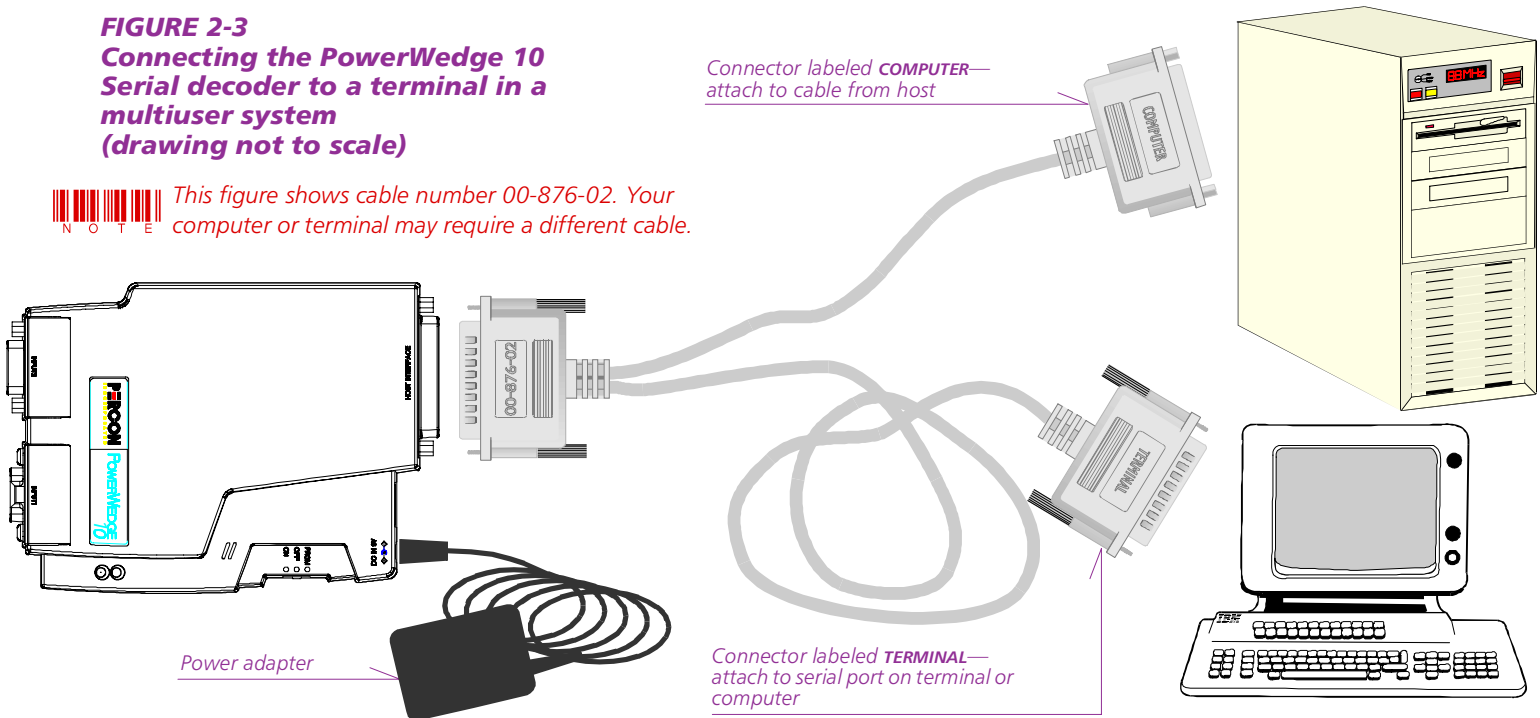
NOTE *Use only a power adapter supplied by your Percon dealer. Using another adapter can damage the decoder or input device.*

4. Attach the small, round plug of the 9-volt power adapter to the power input jack on the PowerWedge 10 (see figure 1-1 on page 1). Plug the other end into an outlet or power strip (preferably one that has surge protection).

5. Plug your bar code scanner into the connector labeled INPUT 1 on the Power-Wedge 10.

6. Move the switch on the PowerWedge 10 to the ON position. The decoder should beep, and the green LED (light-emitting diode) should light up.

7. Turn on your computer or terminal.

8. Scan the following label to set the decoder for serial operation:

You can now begin using the PowerWedge 10.

NOTE *The decoder is set at the factory with the following parameter settings for serial communications. For information about these parameters, see "Serial Programming Parameters," beginning on page 29.*

CODE PARAMETER	I.D. #	DEFAULT SETTING
Host device	C0	ASCII
Baud rate	C1	9600
Data bits	C2	8
Parity	C3	None
Stop bits	C4	1
Xon/Xoff handshaking	C5	Off

Installing Bar Code Readers

On both models of the PowerWedge 10, INPUT 2 is reserved for magnetic stripe input. Connect your bar code reader to INPUT 1 (see figure 2-4).

Installing a Magnetic Stripe Reader (MSR)

Both connectors on the PowerWedge 10 Wedge and PowerWedge 10 Serial can accept input from magnetic stripe readers. However, INPUT 1 is optimized for bar code readers. Attach your magnetic stripe reader to INPUT 2 (see figure 2-4). If you are using two MSRs, connect the primary one to INPUT 2 and the other one to INPUT 1.

For information about programming parameters for magnetic stripe readers, see page 32.

FIGURE 2-4
Input connectors on the PowerWedge 10 (both models)

INPUT 2—connect primary magnetic stripe reader here

INPUT 1—connect bar code reader or second magnetic stripe reader here
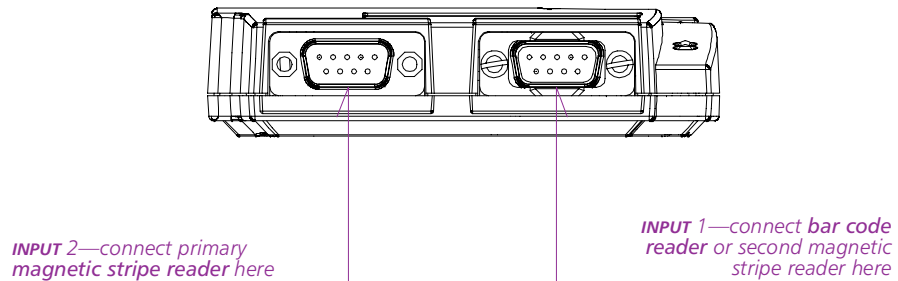
Programming the PowerWedge 10

See appendix *A* for the default settings for all code parameters.

The PowerWedge 10 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 use any of the following methods to program the PowerWedge 10:

❑ Predefined-default programming—*see page 14*

❑ Auto-Learn—*see page 15*

❑ Menu programming—*see page 16*

❑ Bar code batch programming—*see page 18*

❑ On-screen programming—*see page 20*

❑ Serial batch programming—*see page 24*

❑ Cloning—*see page 26*

Predefined Defaults

The PowerWedge 10 has the following three sets of default parameters:

❑ **Predefined Default 0 (D0)** turns every on/off parameter off and sets all minimum and maximum lengths to zero (00). Menu programming remains enabled. 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 and sets all maximum lengths as high as possible. It also sets bar code and magnetic stripe preambles and postambles. This default set gives you the best chance of reading an unknown bar code symbology, and it also identifies the bar code type for you.

❑ **Predefined Default 2 (D2)** is the default set that was installed in the decoder at the factory. This default set meets most users' needs.

You can reset your PowerWedge 10 to one of the predefined default sets by scanning one of the following bar codes:

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

D0
* $ + $ - D 0 E E *

D1
* $ + $ - D 1 E E *

D2
* $ + $ - D 2 E E *

Auto-Learn

Auto-Learn is the simplest method of customizing the PowerWedge 10. With Auto-Learn, you "teach" the decoder to accept the types of bar codes you use.

The current settings for the PowerWedge 10 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 decoder to use Predefined Default 0 (see page 14) before starting Auto-Learn.

To program the PowerWedge 10 using Auto-Learn . . .

NOTE *The Auto-Learn feature does not affect terminators or checksums. To set them, use one of the other programming methods described in this chapter.*

1. Scan the START bar code below. (The bar code also appears on the bottom of the PowerWedge 10.)

   START

   * $ + $ - *

2. Scan a sample of each of your bar code labels. Be sure the decoder 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 want the decoder to read.

NOTE *To quit Auto-Learn mode without saving the setup, scan the following bar codes (E first, F second):*

   * E *

   * F *

3. Save the setup by scanning the bar code labeled E below (or on the bottom of the PowerWedge 10) *twice*. After the first scan, the decoder should beep once and the red LED should flash. After the second scan, the decoder should beep five times and the green LED should be lit.

   E   *Scan this twice.*

   * E *

Menu Programming

This programming method makes use of a "menu" of bar codes found on the bottom of the PowerWedge 10. You can use these bar codes to enter the programming I.D. numbers and settings listed in appendix A.

To program the PowerWedge 10 using the bar code menu . . .

1. Scan the START bar code on the bottom of the PowerWedge 10.

2. Look in appendix A for the identification number (I.D. #) of the parameter you want to change. Scan the bar codes for the digits of that 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.)

3. After making all your changes, save the setup by scanning the bar code labeled E on the bottom of the PowerWedge 10 *twice*. After the first scan, the decoder should beep once and the red LED should flash. After the second scan, the decoder should beep five times and the green LED should be lit.

If you make a mistake or "get lost" while in programming mode, scan the ESC bar code. This will reset the decoder to expect a code I.D. number, ignoring any entries you made since you were last at the base level of programming mode. To quit programming mode without saving any changes, scan the E bar code and then the F bar code.

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

To enter a string, look in appendix C 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:

B6 09 //

I.D. number for
bar code preamble

ASCII value for the
tab character

End-of-string
character
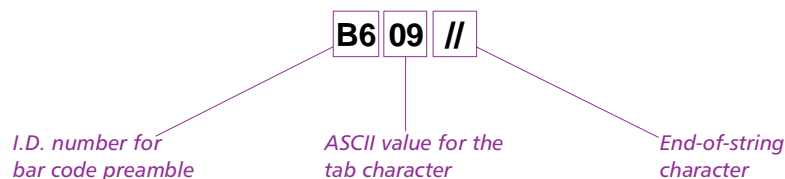
Setting an Autoterminator

An *autoterminator* is an ASCII character that the decoder 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 auto-terminator of CR (carriage return), you would enter **B10D**. To set no autotermi-nator, you would enter **B100**.

Bar Code Batch Programming

The bar code batch method uses bar codes that program the PowerWedge 10 with a single scan. Each batch bar code contains commands to place the decoder into programming mode, set one or more parameters, save the settings, and exit programming mode. When you successfully scan a batch bar code, your decoder programs itself to your settings, beeps five times, and automatically returns to read mode, ready to go to work.

To program the PowerWedge 10 using batch programming . . .

1. Find the batch bar codes you need in appendix B, or create custom bar codes containing the programming I.D. numbers and parameters you want to set. You can create the bar code 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 below.

2. Use a wand, laser, or CCD connected to the PowerWedge 10 to read the bar codes. The decoder beeps five times when programming is successful. If a bar code contains an invalid programming entry, the decoder beeps twice and ignores the programming instructions in the entire bar code.

To accept batch programming, the PowerWedge 10 must be programmed to use the extended (or full ASCII) Code 39 character set. The decoder was shipped from the factory ready to read the extended character set. If you have changed the default, use the bar code menu or on-screen programming to set I.D. #05 to on.

Appendix B of this user's guide contains batch bar codes for most of the settings you will need. To make your own batch bar codes, see appendix A for parameter I.D. numbers and acceptable settings.

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. (You 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 decoder know that it is reading programming information rather than data.

❑ Each bar code must end with **EE** and the final asterisk.

❑ 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 <u>C</u>). 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.


```
* $ + $ - B 1 % U 0 A 3 5 E E *
```

Like all Code 39 bar codes, this one starts and ends with an asterisk (*). **$+$-** starts programming mode. **B1** specifies the autoterminator parameter, and **%U** is the Code 39 equivalent of the null character, which turns it off. **0A** specifies the Interleaved 2 of 5 maximum-length parameter, and **15** sets it to 15 characters per label. **EE** saves the new settings and exits programming mode.

On-Screen Programming

This programming 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 PowerWedge 10 on-screen . . .

1. Open a text editor (for example, the DOS EDIT utility), 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. Move the switch on the PowerWedge 10 to the PRGM position (see figure 1-1 on page 1), and then press the Enter key on your keyboard. The decoder should beep three times, and the on-screen programming menu should appear on your screen, as shown in figure 3-1.

For on-screen programming of the PowerWedge 10 Serial model, you must use a communications program (such as Procomm). Be sure the decoder's serial parameters settings (baud rate, parity, etc.) match the settings of the communications program.
On-screen programming of the keyboard wedge model is available only with the PowerWedge 10 connected to an AT-compatible computer. Be sure to use Percon cable number 00-001-00 for the keyboard wedge configuration.

FIGURE 3-1
Main menu for on-screen programming

```
***** PERCON POWERWEDGE 10 VER X.X MAIN MENU *****

BAR CODE       MAG. STRIPE         COMMUNICATIONS
--------       -----------         --------------
0 CODE39       4 CHANNEL 1 & 2     C HOST SELECTION
0 I2of5
1 M2of5        5 CA DL CONVERT
1 S2of5                            D DEFAULTS
1 CODE11                           D MORE CONTROLS
2 CODABAR/AMES
2 MSI                              E SHOW/EXIT
2 CODE93       B OTHER CONTROLS    E CLONING
3 UPC-A
3 UPC-E
3 EAN/JAN
4 CODE128
5 LCODE-4/5
USE BACKSPACE TO EXIT MODES
(0-E):
```

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.

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

FIGURE 3-2
On-screen programming options for Codabar, Ames, MSI, and Code 93

```
CODABAR/Ames
0 ENABLE=1
1 MIN LENGTH=04
2 MAX LENGTH=20
3 TRANSMIT START/STOP=0
4 CODABAR TO CLSI CONVERSION=0
5 INTERCHARACTER GAP CHECK=0
MSI
6 ENABLE=0
7 MIN LENGTH=04
8 MAX LENGTH=10
9 2ND CHECKSUM REQUIRED=0
A 2ND CHECKSUM MOD 11=0
B TRANSMIT CHECKSUM=0
CODE93
C ENABLE=1
D MIN LENGTH=02
E MAX LENGTH=20
(0-B):
```

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.

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

NOTE

5. Type the I.D. of the parameter whose setting you want to change, and press Enter. A prompt will display the valid settings or range of settings for the parameter, as shown in the following example:

```
ENABLE CODABAR/AMES (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.

8. When you are finished checking or changing parameter settings, type **EE** at the prompt and press Enter. This will save your changes and exit on-screen programming.

9. Press Ctrl+Z and then press Enter to return to the DOS prompt.

*To leave on-screen programming without saving any changes, type **EF** and press Enter.*

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 (ECHO SETTINGS TO SCREEN), type **1** and press Enter. A list of all the parameters will appear on your screen. You can pause the display of the list at any time by pressing 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***.

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 PowerWedge 10 Serial model. The decoder's serial parameter settings must match the host's settings, and the 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 decoder'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 decoder.)

❑ 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.)

NOTE — For Code 39 and ASCII equivalents for serial characters, see table 3-2 on page 31.

❑ You must enter control or "action" characters (for example, tabs, line feeds, or function keys) as a "mnemonic" word enclosed in parentheses (see appendix C). 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 decoder 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 decoder:

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

Cloning

Cloning is a way to copy the setup from one PowerWedge 10 to another. Once you have programmed the first PowerWedge 10, you can use it as a master to turn other PowerWedge 10s into clones of the first one.

To program the PowerWedge 10 using cloning . . .

NOTE	*Cloning will work only if the master and slave are the same model. For example, you cannot use a PowerWedge 10 Serial as the master and a keyboard wedge model or a Mini PowerWedge as the slave.*

NOTE	*You can also use the bar code menu on the bottom of the PowerWedge 10 to enter cloning mode. Scan the labels for START, E, and C, in that order.*

NOTE	*To make your own cloning cable, see the pinout diagram on page 110.*

1. Connect a bar code reader to the connector labeled INPUT 1 on the programmed PowerWedge 10 (the "master"), and set the On/Off/Program switch to the ON position (see figure 1-1 on page 1).

2. Scan the following bar code:

    `* $ + $ - E C *`

    This puts the programmed PowerWedge 10 into cloning mode. While the decoder is in cloning mode, the red and green light-emitting diodes (LEDs) alternate flashing twice (that is, the flashing sequence is green-green-red-red, green-green-red-red, and so on).

3. Remove the bar code reader from the master, and connect one end of the cloning cable (Percon part number 00-874-25) to INPUT 1 on the master.

4. The PowerWedge 10 that you want to program is called the "slave." Set the On/Off/Program switch on the slave to the OFF position.

5. Connect the free end of the cloning cable to INPUT 1 on the slave.

6. Set the On/Off/Program switch on the slave to the PRGM position.

    The parameter settings from the master PowerWedge 10 will immediately be copied into the slave. The slave will indicate successful programming by beeping three times and repeatedly flashing its green LED twice.

7. Turn the slave off and disconnect the cable from it.

8. Repeat steps 4 through 7 to make additional clones.

General Programming Parameters

Table 3-1 describes some of the general parameters for programming the Power-Wedge 10. Page references indicate where to find bar codes for setting the parameters. For descriptions of serial parameters, see page 29. For information about magnetic stripe programming parameters, see page 32. For a complete list of parameters and defaults, see appendix A.

TABLE 3-1
General programming parameters for the PowerWedge 10

I.D. #	PARAMETER	DESCRIPTION
05	Code 39 full ASCII *(page 53)*	Supports the Code 39 extended ASCII character set (see appendix C). For example, a character string encoded in Code 39 as +A is transmitted as a lowercase *a*. This allows every key of the keyboard to be encoded in a Code 39 bar code.
25	Codabar wide intercharacter gaps *(page 67)*	Allows reading of Codabar bar codes printed with large gaps between characters.
33, 36	UPC conversion *(pages 76 and 77)*	Converts UPC-A bar codes to EAN-13 (I.D. #33), and converts UPC-E bar codes to UPC-A (I.D. #36).
3C–3E	UPC/EAN/JAN extensions *(page 79)*	Reads two-digit (I.D. #3C) and five-digit (I.D. #3D) extensions if the decoder is programmed to allow them. Doesn't read UPC, EAN, or JAN bar codes if the decoder is programmed to *require* extensions (I.D. #3E) and no extensions are present.
B1	Autoterminator	Appends an ASCII character to each transmission. You can program the ASCII value for any single character (see appendix C). The factory default is a carriage return (the ENTER key). Programming a value of 00 disables the autoterminator so that the decoder transmits only the bar-coded data.
B2	ASCII capital to lowercase *(page 83)*	Changes scanned capital letters to lowercase (or lowercase to uppercase if your CAPS LOCK key is enabled).
B3	Intercharacter delay *(page 83)*	Adds 1 to 99 milliseconds between transmissions of ASCII characters. Use a larger number if characters are omitted when transmitted to the host.

table continues

TABLE 3-1
General programming parameters for the PowerWedge 10 (cont.)

I.D. #	PARAMETER	DESCRIPTION
B4	CCD/laser redundancy *(page 84)*	Requires charge-coupled devices (CCDs) and lasers to obtain two identical reads in a row before transmitting the decoded data. This is an error-checking feature. Only one read's worth of data is transmitted.
B5	Send symbology identifiers *(page 84)*	Precedes the encoded data with a character identifying the type of bar code (see page 40).
B6 B7	Preamble Postamble	Precedes data with a preamble (I.D. #B6) or appends a postamble (I.D. #B7). Enter a character string ending with //.
B8–BC	Beeper *(pages 85–86)*	Controls the decoder's beeper. You can select one of eight pitches for the decoder's good-read beeps (I.D. #B8) and program the number of beeps (I.D. #B9), the duration of each beep (I.D. #BA), and the beep volume (I.D. #BC). You can enable an end-of-transmission beep (I.D. #BB) to indicate that the decoder is ready to scan again.
BF	Numeric keypad *(page 88)*	Transmits numeric keypad values instead of the number keys in the top row of the keyboard. (Some applications recognize a difference between a number typed on the top row of the keyboard and the same number typed on the keyboard's numeric keypad.)
C0	Host device *(pages 90–92)*	Identifies the host computer type. This setting is not affected by the predefined defaults (D0–D2).

Serial Programming Parameters

You can use batch programming to set serial parameters for the PowerWedge 10 Serial model. This section describes the parameters; bar codes for setting them begin on page 48. (For a complete listing of parameters and defaults, see appendix A.)

This section also includes a table of Code 39 and ASCII equivalents for serial characters (see page 31). Use the Code 39 equivalents when creating bar codes for batch programming.

Data Type (I.D. #C0)

Bar codes for setting data type are on page 48.

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)

Bar codes for setting baud rate are on page 48.

This parameter determines the communication speed. The setting you use for the decoder must match the setting that the host uses.

Data Bits (I.D. #C2)

Bar codes for setting data bits are on page 49.

This parameter specifies the number of data bits in each character.

Parity (I.D. #C3)

Bar codes for setting parity are on page 49.

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 decoder 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 decoder will wait before checking for a valid record after each character is received is determined by the timeout setting.

Code 39 and ASCII Equivalents for Serial Characters

Table 3-2 provides Code 39 and ASCII equivalents for serial characters. For Code 39, ASCII, and mnemonic equivalents of keyboard keys, see appendix C.

TABLE 3-2
Code 39 and ASCII equivalents for serial characters

Character	Code 39	ASCII Value	Character	Code 39	ASCII Value	Character	Code 39	ASCII Value
NUL	%U	80	VT	$K	0B	SYN	$V	16
SOH	$A	01	FF	$L	0C	ETB	$W	17
STX	$B	02	CR	$M	0D	CAN	$X	18
ETX	$C	03	SO	$N	0E	EM	$Y	19
EOT	$D	04	SI	$O	0F	SUB	$Z	1A
ENQ	$E	05	DLE	$P	10	ESC	%A	1B
ACK	$F	06	DC1	$Q	11	FS	%B	1C
BEL	$G	07	DC2	$R	12	GS	%C	1D
BS	$H	08	DC3	$S	13	RS	%D	1E
HT	$I	09	DC4	$T	14	US	%E	1F
LF	$J	0A	NAK	$U	15	Terminate string: //		

Magnetic Stripe Programming Parameters

Table 3-3 describes the options for programming the magnetic stripe channels for both models of the PowerWedge 10. Bar codes for setting these parameters are on pages 80–81. (For a complete listing of parameters and defaults, see appendix A.)

TABLE 3-3
Magnetic stripe
parameters for the
PowerWedge 10

I.D. #		PARAMETER	DESCRIPTION
CH. 1	CH. 2		
44	4A	Enable	Allows the decoder to accept data on the enabled channel or channels.
45	4B	Required	Specifies that the channel must have valid data before *either* channel's data will be transmitted.
48 49	4E 4F	Preamble Postamble	Can be used to identify which channel data is entering from. Preambles and postambles assigned to bar code data are ignored when magnetic stripe data is transmitted.
5C	5C	California DL/ID alpha conversion	Can be used to convert the seventh and eighth characters of the California driver's license identification to their alphanumeric equivalents.

Programming Options

Tables <u>A-1</u> lists programming I.D. numbers for predefined defaults, which provide a fast and easy way to set all parameters off, on, or to factory settings.

Table <u>A-2</u> lists cloning, display, and save-and-exit settings.

Table <u>A-3</u> provides the following information:

❑ **Code Parameter** is the "human" name for programming options.

❑ **I.D. #** is the "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 decoder. Programming I.D. numbers given in this appendix 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.

N O T E

For explanations of some general programming parameters, see pages <u>27</u>–<u>28</u>. For explanations of serial parameters, see page <u>29</u>. For information about magnetic stripe programming parameters, see page <u>32</u>.

❑ **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 pre-defined default D0, D1, or D2 (see page 14).

Table A-4 (on page 43) 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
Cloning, display, and
save-and-exit settings

SETTING	I.D. #	TYPE
Cloning	EC	Immediate
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
MIL-STD-1189 support	07	On/Off	On *or* Off	Off	On	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

TABLE A-3
General programming
parameters (cont.)

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 check digits	1E	On/Off	On *or* Off	Off	Off	Off
Send check digit(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	Off	Off
Wide intercharacter gaps allowed	25	On/Off	On *or* Off	Off	On	Off

table continues

TABLE A-3
General programming
parameters (cont.)

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULTS		
				D0	D1	D2
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 check digits	29	On/Off	On *or* Off	Off	Off	Off
2nd check digit Mod 11	2A	On/Off	On *or* Off	Off	Off	Off
Send check digit(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	00–50	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 check digit	32	On/Off	On *or* Off	Off	On	Off
Convert UPC-A to EAN-13	33	On/Off	On *or* Off	Off	On	Off
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 check digit	38	On/Off	On *or* Off	Off	On	Off

table continues

TABLE A-3
General programming parameters (cont.)

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULTS		
				D0	D1	D2
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 EAN13 to ISBN	3B	On/Off	On *or* Off	Off	Off	Off
Transmit 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
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

table continues

TABLE A-3
General programming
parameters (cont.)

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULTS		
				D0	D1	D2
Magnetic Stripe Channel 1			*Enter 1 for On and 0 for Off.*			
Enable	44	On/Off	On *or* Off	Off	On	On
Required	45	On/Off	On *or* Off	Off	Off	Off
Preamble	48	String	*	//	1 //[†]	//
Postamble	49	String	*	//	1//[§]	//
Any supported keyboard keys, up to the maximum length supported by available total memory (about 80 characters) [†]*Includes a space after the 1* [§]*Includes a space before the 1*						
Magnetic Stripe Channel 2			*Enter 1 for On and 0 for Off.*			
Enable	4A	On/Off	On *or* Off	Off	On	On
Required	4B	On/Off	On *or* Off	Off	Off	Off
Preamble	4E	String	*	//	2 //[†]	//
Postamble	4F	String	*	//	2//[§]	//
California DL/ID alpha conversion	5C	On/Off	On *or* Off	Off	On	On
Any supported keyboard keys, up to the maximum length supported by available total memory (about 80 characters) [†]*Includes a space after the 2* [§]*Includes a space before the 2*						

table continues

TABLE A-3
General programming parameters (cont.)

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULTS		
				D0	D1	D2
Other Controls			*Enter 1 for On and 0 for Off.*			
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 D = M 2 of 5 G = EAN-8 J = Code 11 N = Labelcode 4/5 *B = I 2 of 5 E = UPC-E H = MSI K = Code 128* *C = Code 39 F = S 2 of 5 I = Codabar/Ames M = EAN-13*						
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

TABLE A-3
General programming parameters (cont.)

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
Laser modes	D4	Value	00 = Normal 01 = Autoscan 02 = Multiscan 03 = Symbol blinking	00	00	00

table continues

TABLE A-3
General programming parameters (cont.)

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULTS		
				D0	D1	D2
Other Controls *(continued)*			*Enter 1 for On and 0 for Off.*			
Require keyboard	D5	On/Off	On *or* Off	On	On	On
Autoscan timeout	D6	Value	01–99 *(minutes)* 00 = 256 minutes	30	30	30
CTRL out at power-up	D7	On/Off	On = High Off = Low	On	On	On
Host device	C0	Value	*	*None*	*None*	*None*

*00 = IBM PC (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.*
10 = IBM PC (U.S. keyboard)
11 = IBM AT, PS/2 30-286, 50, 50Z, 60, 70, 80, 90, 95 (U.S. keyboard); ADDS terminals; 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 (U.S. keyboard)
25 = Data General D213, D413
32 = TeleVideo models 935, 965, 9065, and 9320
40 = DEC (PowerWedge 10 Serial only)
42 = NEC PowerMate
50 = Serial ASCII
51 = Serial PC scan codes
> **NOTE:** *The host devices listed above were supported at the time this user's guide was printed. Additional devices may also be supported. Please contact your dealer or Percon Customer Service for current information.*

TABLE A-4
Serial programming parameters

CODE PARAMETER	I.D. #	TYPE	ACCEPTABLE INPUT	PREDEFINED DEFAULT (C8)
			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
Timeout	CD	Value	00–99[†] 00 = 2.55 seconds	01

*The PowerWedge 10 will not operate with a combination of 7 data bits, no parity, and 1 stop bit
[†]10-millisecond increments; the default setting (01) means 10 milliseconds

Bar Codes for Programming the PowerWedge 10

This chapter provides bar codes for common setup parameters for programming the Percon PowerWedge 10. Factory default settings (D2) are underlined.

Alphabetical List of Contents

Predefined Defaults

D0

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - D 0 E E *

D1

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - D 1 E E *

D2

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - D 2 E E *

Auto-Learn

START

*\$ + \$ - *

**SAVE
AND
EXIT**

Scan this twice.

**EXIT
WITHOUT
SAVING**

Scan this first.   *Then scan this.*

Cloning

EC

*\$ + \$ - E C *

Serial Parameters

RESET SERIAL DEFAULTS

```
* $ + $ - C 8 C 0 5 0 E E *
```

DATA TYPE

ASCII

```
* $ + $ - C 0 5 0 E E *
```

PC scan codes

```
* $ + $ - C 0 5 1 E E *
```

BAUD RATE

300

```
* $ + $ - C 1 0 0 E E *
```

600

```
* $ + $ - C 1 0 1 E E *
```

1200

```
* $ + $ - C 1 0 2 E E *
```

2400

```
* $ + $ - C 1 0 3 E E *
```

4800

```
* $ + $ - C 1 0 4 E E *
```

9600

```
* $ + $ - C 1 0 5 E E *
```

19200

```
* $ + $ - C 1 0 6 E E *
```

38400

```
* $ + $ - C 1 0 7 E E *
```

57600

```
* $ + $ - C 1 0 8 E E *
```

DATA BITS

7 bits

```
* $ + $ - C 2 0 7 E E *
```

8 bits

```
* $ + $ - C 2 0 8 E E *
```

PARITY

None

```
* $ + $ - C 3 0 0 E E *
```

Mark

```
* $ + $ - C 3 0 1 E E *
```

Space

```
* $ + $ - C 3 0 2 E E *
```

Odd

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 3 0 3 E E *

Even

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 3 0 4 E E *

STOP BITS

1

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 4 0 1 E E *

2

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 4 0 2 E E *

XON/XOFF HANDSHAKING

On

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 5 1 E E *

Off

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C 5 0 E E *

PROTOCOL

EOR only

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C A 0 0 E E *

ACK/NAK

||||| ||| |||| || ||| |||| | | |||| ||||
* $ + $ - C A 0 1 E E *

Code 39

ENABLE

On

$+$-001EE

Off

$+$-000EE

MINIMUM LENGTH

00

$+$-0100EE

10

$+$-0110EE

20

$+$-0120EE

30

$+$-0130EE

40

$+$-0140EE

50

$+$-0150EE

MAXIMUM LENGTH

10

```
* $ + $ - 0 2 1 0 E E *
```

20

```
* $ + $ - 0 2 2 0 E E *
```

30

```
* $ + $ - 0 2 3 0 E E *
```

40

```
* $ + $ - 0 2 4 0 E E *
```

50

```
* $ + $ - 0 2 5 0 E E *
```

ENABLE CHECKSUM

On

```
* $ + $ - 0 3 1 E E *
```

Off

```
* $ + $ - 0 3 0 E E *
```

OUTPUT CHECKSUM

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 4 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 4 0 E E *

FULL ASCII MODE

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 5 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 5 0 E E *

MIL-STD-1189 SUPPORT

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 7 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 7 0 E E *

Interleaved 2 of 5

ENABLE

On

```
| | | || ||| | | |||| |
* $ + $ - 0 8 1 E E *
```

Off

```
| | | || ||| | | |||| |
* $ + $ - 0 8 0 E E *
```

MINIMUM LENGTH

2

```
| | | || ||| | | |||| |
* $ + $ - 0 9 0 2 E E *
```

6

```
| | | || ||| | | |||| |
* $ + $ - 0 9 0 6 E E *
```

10

```
| | | || ||| | | |||| |
* $ + $ - 0 9 1 0 E E *
```

20

```
| | | || ||| | | |||| |
* $ + $ - 0 9 2 0 E E *
```

30

```
| | | || ||| | | |||| |
* $ + $ - 0 9 3 0 E E *
```

40

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 9 4 0 E E *

50

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 9 5 0 E E *

MAXIMUM LENGTH

<u>**10**</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 A 1 0 E E *

20

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 A 2 0 E E *

30

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 A 3 0 E E *

40

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 A 4 0 E E *

50

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 0 A 5 0 E E *

REQUIRED LENGTH *(no default; overrides minimum and maximum settings)*

2

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  0  2  0  A  0  2  E  E  *`

4

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  0  4  0  A  0  4  E  E  *`

6

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  0  6  0  A  0  6  E  E  *`

8

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  0  8  0  A  0  8  E  E  *`

10

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  1  0  0  A  1  0  E  E  *`

12

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  1  2  0  A  1  2  E  E  *`

14

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  1  4  0  A  1  4  E  E  *`

16

||||||||||||||||||||||||||||||||||||||||
`*  $  +  $  -  0  9  1  6  0  A  1  6  E  E  *`

18

```
* $ + $ - 0 9 1 8 0 A 1 8 E E *
```

20

```
* $ + $ - 0 9 2 0 0 A 2 0 E E *
```

ENABLE CHECKSUM

On

```
* $ + $ - 0 B 1 E E *
```

Off

```
* $ + $ - 0 B 0 E E *
```

OUTPUT CHECKSUM

On

```
* $ + $ - 0 C 1 E E *
```

Off

```
* $ + $ - 0 C 0 E E *
```

LENGTHS 6 AND 14 ONLY *(case code)*

On

```
* $ + $ - 0 D 1 E E *
```

Off

```
* $ + $ - 0 D 0 E E *
```

Matrix 2 of 5

ENABLE

On

```
* $ + $ - 1 0 1 E E *
```

<u>Off</u>

```
* $ + $ - 1 0 0 E E *
```

MINIMUM LENGTH

<u>06</u>

```
* $ + $ - 1 1 0 6 E E *
```

10

```
* $ + $ - 1 1 1 0 E E *
```

20

```
* $ + $ - 1 1 2 0 E E *
```

30

```
* $ + $ - 1 1 3 0 E E *
```

40

```
* $ + $ - 1 1 4 0 E E *
```

50

```
* $ + $ - 1 1 5 0 E E *
```

MAXIMUM LENGTH

10

```
* $ + $ - 1 2 1 Q E E *
```

20

```
* $ + $ - 1 2 2 Q E E *
```

30

```
* $ + $ - 1 2 3 Q E E *
```

40

```
* $ + $ - 1 2 4 Q E E *
```

50

```
* $ + $ - 1 2 5 Q E E *
```

ENABLE CHECKSUM

On

```
* $ + $ - 1 3 1 E E *
```

Off

```
* $ + $ - 1 3 Q E E *
```

OUTPUT CHECKSUM

On

||||||||||||||||||||||||||||||||
* $ + $ - 1 4 1 E E *

Off

||||||||||||||||||||||||||||||||
* $ + $ - 1 4 0 E E *

Standard 2 of 5

ENABLE

On

||||||||||||||||||||||||||||||||
* $ + $ - 1 5 1 E E *

Off

||||||||||||||||||||||||||||||||
* $ + $ - 1 5 0 E E *

MINIMUM LENGTH

06

||||||||||||||||||||||||||||||||
* $ + $ - 1 6 0 6 E E *

10

||||||||||||||||||||||||||||||||
* $ + $ - 1 6 1 0 E E *

20

||||||||||||||||||||||||||||||||
* $ + $ - 1 6 2 0 E E *

30

```
* $ + $ - 1 6 3 0 E E *
```

40

```
* $ + $ - 1 6 4 0 E E *
```

50

```
* $ + $ - 1 6 5 0 E E *
```

MAXIMUM LENGTH

<u>**10**</u>

```
* $ + $ - 1 7 1 0 E E *
```

20

```
* $ + $ - 1 7 2 0 E E *
```

30

```
* $ + $ - 1 7 3 0 E E *
```

40

```
* $ + $ - 1 7 4 0 E E *
```

50

```
* $ + $ - 1 7 5 0 E E *
```

ENABLE CHECKSUM

On

* $ + $ - 1 8 1 E E *

Off

* $ + $ - 1 8 0 E E *

OUTPUT CHECKSUM

On

* $ + $ - 1 9 1 E E *

Off

* $ + $ - 1 9 0 E E *

USE 2-BAR START/STOP

On

* $ + $ - 1 A 1 E E *

Off

* $ + $ - 1 A 0 E E *

Code 11

ENABLE

On

```
* $ + $ - 1 B 1 E E *
```

Off

```
* $ + $ - 1 B 0 E E *
```

MINIMUM LENGTH

4

```
* $ + $ - 1 C 0 4 E E *
```

10

```
* $ + $ - 1 C 1 0 E E *
```

20

```
* $ + $ - 1 C 2 0 E E *
```

30

```
* $ + $ - 1 C 3 0 E E *
```

40

```
* $ + $ - 1 C 4 0 E E *
```

50

```
* $ + $ - 1 C 5 0 E E *
```

MAXIMUM LENGTH

10

||||||||||||||||||||||||||||||||
* $ + $ - 1 D 1 Q E E *

20

||||||||||||||||||||||||||||||||
* $ + $ - 1 D 2 Q E E *

30

||||||||||||||||||||||||||||||||
* $ + $ - 1 D 3 Q E E *

40

||||||||||||||||||||||||||||||||
* $ + $ - 1 D 4 Q E E *

50

||||||||||||||||||||||||||||||||
* $ + $ - 1 D 5 Q E E *

REQUIRE 2 CHECK DIGITS

On

||||||||||||||||||||||||||||||||
* $ + $ - 1 E 1 E E *

Off

||||||||||||||||||||||||||||||||
* $ + $ - 1 E Q E E *

OUTPUT CHECK DIGIT(S)

On

|||||||||||||||||||||||||||||||||||||
* $ + $ - 1 F 1 E E *

Off

|||||||||||||||||||||||||||||||||||||
* $ + $ - 1 F 0 E E *

Codabar/Ames

ENABLE

On

|||||||||||||||||||||||||||||||||||||
* $ + $ - 2 0 1 E E *

Off

|||||||||||||||||||||||||||||||||||||
* $ + $ - 2 0 0 E E *

MINIMUM LENGTH

04

|||||||||||||||||||||||||||||||||||||
* $ + $ - 2 1 0 4 E E *

10

|||||||||||||||||||||||||||||||||||||
* $ + $ - 2 1 1 0 E E *

20

|||||||||||||||||||||||||||||||||||||
* $ + $ - 2 1 2 0 E E *

30

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 1 3 0 E E *

40

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 1 4 0 E E *

50

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 1 5 0 E E *

MAXIMUM LENGTH

10

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 2 1 0 E E *

20

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 2 2 0 E E *

30

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 2 3 0 E E *

40

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 2 4 0 E E *

50

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 2 5 0 E E *

OUTPUT STOP/START

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 3 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 3 0 E E *

CODABAR-TO-CLSI CONVERSION

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 4 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 4 0 E E *

WIDE INTERCHARACTER GAPS ALLOWED

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 5 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 2 5 0 E E *

MSI

ENABLE

On

```
* $ + $ - 2 6 1 E E *
```

Off

```
* $ + $ - 2 6 0 E E *
```

MINIMUM LENGTH

1

```
* $ + $ - 2 7 0 1 E E *
```

4

```
* $ + $ - 2 7 0 4 E E *
```

7

```
* $ + $ - 2 7 0 7 E E *
```

10

```
* $ + $ - 2 7 1 0 E E *
```

12

```
* $ + $ - 2 7 1 2 E E *
```

14

```
* $ + $ - 2 7 1 4 E E *
```

MAXIMUM LENGTH

1

```
*  $  +  $  -  2  8  0  1  E  E  *
```

4

```
*  $  +  $  -  2  8  0  4  E  E  *
```

7

```
*  $  +  $  -  2  8  0  7  E  E  *
```

<u>**10**</u>

```
*  $  +  $  -  2  8  1  0  E  E  *
```

12

```
*  $  +  $  -  2  8  1  2  E  E  *
```

14

```
*  $  +  $  -  2  8  1  4  E  E  *
```

REQUIRE 2 CHECK DIGITS

On

```
*  $  +  $  -  2  9  1  E  E  *
```

<u>**Off**</u>

```
*  $  +  $  -  2  9  0  E  E  *
```

2ND CHECK DIGIT MOD 11

On

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 A 1 E E *

<u>Off</u>

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 A Q E E *

OUTPUT CHECK DIGIT(S)

On

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 B 1 E E *

<u>Off</u>

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 B Q E E *

Code 93

ENABLE

<u>On</u>

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 C 1 E E *

Off

||||||||||||||||||||||||||||||||||||||
* $ + $ - 2 C Q E E *

MINIMUM LENGTH

<u>02</u>

```
*$+$-2D02EE*
```

10

```
*$+$-2D10EE*
```

20

```
*$+$-2D20EE*
```

30

```
*$+$-2D30EE*
```

40

```
*$+$-2D40EE*
```

50

```
*$+$-2D50EE*
```

MAXIMUM LENGTH

10

```
* $ + $ - 2 E 1 0 E E *
```

20

```
* $ + $ - 2 E 2 0 E E *
```

30

```
* $ + $ - 2 E 3 0 E E *
```

40

```
* $ + $ - 2 E 4 0 E E *
```

50

```
* $ + $ - 2 E 5 0 E E *
```

Code 128

ENABLE

On

```
* $ + $ - 4 0 1 E E *
```

Off

```
* $ + $ - 4 0 0 E E *
```

MINIMUM LENGTH

2

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 0 2 E E *

10

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 1 0 E E *

20

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 2 0 E E *

30

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 3 0 E E *

40

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 4 0 E E *

50

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 1 5 0 E E *

MAXIMUM LENGTH

10

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 2 1 0 E E *

20

||||||||||||||||||||||||||||||||||||||||
* $ + $ - 4 2 2 0 E E *

30

||||||||||||||||||||||||
* $ + $ - 4 2 3 0 E E *

40

||||||||||||||||||||||||
* $ + $ - 4 2 4 0 E E *

50

||||||||||||||||||||||||
* $ + $ - 4 2 5 0 E E *

ENABLE UCC128

On

||||||||||||||||||||||||
* $ + $ - 4 3 0 1 E E *

<u>Off</u>

||||||||||||||||||||||||
* $ + $ - 4 3 0 0 E E *

Labelcode 4/5

ENABLE

On

||||||||||||||||||||||||
* $ + $ - 5 2 1 E E *

<u>Off</u>

||||||||||||||||||||||||
* $ + $ - 5 2 0 E E *

CONVERT

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 5 3 1 E E *

<u>Off</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 5 3 0 E E *

UPC-A

ENABLE UPC-A

<u>On</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 0 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 0 0 E E *

OUTPUT SYSTEM DIGIT

<u>On</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 1 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 1 0 E E *

OUTPUT CHECK DIGIT

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 2 1 E E *

<u>Off</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 2 0 E E *

CONVERT UPC-A TO EAN-13

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 3 1 E E *

<u>Off</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 3 0 E E *

UPC-E

USE SYSTEM DIGIT 0

<u>On</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 4 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* $ + $ - 3 4 0 E E *

USE SYSTEM DIGIT 1

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 5 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 5 0 E E *

CONVERT UPC-E TO UPC-A

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 6 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 6 0 E E *

OUTPUT SYSTEM DIGIT

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 7 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 7 0 E E *

OUTPUT CHECK DIGIT

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 8 1 E E *

<u>Off</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 8 0 E E *

EAN/JAN

ENABLE EAN-8/JAN-8

<u>On</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 9 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 9 0 E E *

ENABLE EAN-13/JAN-13

<u>On</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 A 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 A 0 E E *

CONVERT EAN-13 TO ISBN

On

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 B 1 E E *

<u>Off</u>

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 B 0 E E *

UPC/EAN/JAN Extensions

ALLOW 2-DIGIT EXTENSIONS

<u>On</u>

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 C 1 E E *

Off

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 C 0 E E *

ALLOW 5-DIGIT EXTENSIONS

<u>On</u>

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 D 1 E E *

Off

‖‖|‖|‖‖‖|‖‖|‖|‖‖|‖
* $ + $ - 3 D 0 E E *

REQUIRE EXTENSIONS

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 F 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 3 F 0 E E *

Magnetic Stripe Channels

ENABLE CHANNEL 1

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 4 4 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 4 4 0 E E *

REQUIRE CHANNEL 1

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 4 5 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - 4 5 0 E E *

ENABLE CHANNEL 2

On

```
* $ + $ - 4 A 1 E E *
```

Off

```
* $ + $ - 4 A 0 E E *
```

REQUIRE CHANNEL 2

On

```
* $ + $ - 4 B 1 E E *
```

Off

```
* $ + $ - 4 B 0 E E *
```

CALIFORNIA DRIVER LICENSE/ID CARD ALPHA CONVERSION *(Track 2)*

On

```
* $ + $ - 5 C 1 E E *
```

Off

```
* $ + $ - 5 C 0 E E *
```

Other Controls

PROGRAMMING MODE

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 0 0 0 E E *

Serial
Batch

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 0 0 1 E E *

Menu

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 0 0 2 E E *

Both

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 0 0 3 E E *

AUTOTERMINATOR

(CR)

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 1 $ M E E *

(TAB)

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 1 $ I E E *

None

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 1 % U E E *

ASCII UPPERCASE TO LOWERCASE CONVERSION

On

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 2 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 2 0 E E *

INTERCHARACTER DELAY *(in milliseconds)*

0

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 3 0 0 E E *

5

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 3 0 5 E E *

10

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 3 1 0 E E *

20

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 3 2 0 E E *

40

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 3 4 0 E E *

CCD/LASER REDUNDANCY

On

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 4 1 E E *

Off

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 4 0 E E *

OUTPUT SYMBOLOGY IDENTIFIER

On

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 5 1 E E *

Off

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 5 0 E E *

GOOD-READ TONE *(in hertz)*

2400

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 8 0 4 E E *

3200

||||||| ||| ||||| ||||||| |||||||
* $ + $ - B 8 0 7 E E *

3600

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 8 0 0 E E *

4430

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 8 0 3 E E *

GOOD-READ BEEPS

<u>1</u>

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 9 0 1 E E *

2

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 9 0 2 E E *

3

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 9 0 3 E E *

4

||||||||||| ||| | ||| ||| | |||||||||||
* $ + $ - B 9 0 4 E E *

GOOD-READ BEEP DURATION *(in seconds)*

0.07

```
*  $  +  $  -  B  A  0  0  E  E  *
```

0.13

```
*  $  +  $  -  B  A  0  1  E  E  *
```

0.18

```
*  $  +  $  -  B  A  0  2  E  E  *
```

0.36

```
*  $  +  $  -  B  A  0  3  E  E  *
```

END-OF-TRANSMISSION BEEP

On

```
*  $  +  $  -  B  B  1  E  E  *
```

Off

```
*  $  +  $  -  B  B  0  E  E  *
```

BEEPER VOLUME

Off

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B C 0 0 E E *

Low

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B C 0 1 E E *

Medium

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B C 0 2 E E *

<u>High</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B C 0 3 E E *

INTERFUNCTION DELAY *(in milliseconds)*

<u>0</u>

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B E 0 0 E E *

5

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B E 0 5 E E *

10

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B E 1 0 E E *

20

||||||||||||||||||||||||||||||||||||
* $ + $ - B E 2 0 E E *

40

||||||||||||||||||||||||||||||||||||
* $ + $ - B E 4 0 E E *

USE NUMERIC KEYPAD

On

||||||||||||||||||||||||||||||||||||
* $ + $ - B F 1 E E *

Off

||||||||||||||||||||||||||||||||||||
* $ + $ - B F 0 E E *

LASER/INPUT MODES

Normal

||||||||||||||||||||||||||||||||||||
* $ + $ - D 4 0 0 E E *

Autoscan

||||||||||||||||||||||||||||||||||||
* $ + $ - D 4 0 1 E E *

Multiscan

||||||||||||||||||||||||||||||||||||
* $ + $ - D 4 0 2 E E *

**Symbol
Blinking**

||||||||||||||||||||||||||||||||||||
* $ + $ - D 4 0 3 E E *

REQUIRE KEYBOARD

On

```
*  $  +  $  -  D  5  1  E  E  *
```

Off

```
*  $  +  $  -  D  5  0  E  E  *
```

AUTOSCAN TIMEOUT

1 min.

```
*  $  +  $  -  D  6  0  1  E  E  *
```

5 min.

```
*  $  +  $  -  D  6  0  5  E  E  *
```

10 min.

```
*  $  +  $  -  D  6  1  0  E  E  *
```

30 min.

```
*  $  +  $  -  D  6  3  0  E  E  *
```

60 min.

```
*  $  +  $  -  D  6  6  0  E  E  *
```

256 min.

```
*  $  +  $  -  D  6  0  0  E  E  *
```

CTRL OUT AT POWER-UP

<u>High</u>

```
*$+$-D71EE*
```

Low

```
*$+$-D70EE*
```

Host Device

PC/XT (International keyboard)

```
*$+$-C000EE*
```

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

```
*$+$-C001EE*
```

PS/2 models 25 and 30 (International keyboard)

```
*$+$-C002EE*
```

PC/XT (U.S. keyboard)

```
*$+$-C010EE*
```

AT; PS/2 models 30-286, 50, 50Z, 60, 70, 80, 90, and 95 (U.S. keyboard); ADDS; NCR 2900

||||||| *$+$-CQ11EE* |||||||

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

||||||| *$+$-CQ12EE* |||||||

IBM and Telex terminals (102-key keyboard)

||||||| *$+$-CQ15EE* |||||||

IBM and Telex terminals (122-key keyboard); Decision Data models 3496 and 3781

||||||| *$+$-CQ17EE* |||||||

Macintosh™ (U.S. keyboard)

||||||| *$+$-CQ21EE* |||||||

Data General D213, D413

||||||| *$+$-CQ25EE* |||||||

TeleVideo models 935, 965, 9065, and 9320

||| |||||| || | || ||| | | |||| ||| | |||| |||| ||||| ||
* $ + $ - C Q 3 2 E E *

DEC (PowerWedge 10 Serial only)

||| |||||| || | || ||| | | |||| ||| | |||| |||| ||||| ||
* $ + $ - C Q 4 Q E E *

NEC PowerMate

||| |||||| || | || ||| | | |||| ||| | |||| |||| ||||| ||
* $ + $ - C Q 4 2 E E *

Full Keyboard Support

Almost every key on your keyboard—including nonprinting keys, such as PgDn and Ctrl—can be programmed into your PowerWedge 10 decoder. The tables in this appendix list ASCII values, "mnemonic" values, and Code 39 equivalents for programming all keyboard keys.

Use the *ASCII* values whenever you program your decoder with the menu method. For example, to turn on the Caps Lock key (value 03 from table C-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 decoder. For example, the decoder transmits the page-down command to the computer as soon as it reads a bar code containing the characters **%U$Z**.

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 decoder for batch programming.

Be sure to include the parentheses when you enter mnemonics.

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 or serial batch 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 decoder 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 FI with no autoterminator after it.

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

Computer or Terminal	Table	Page
ADDS	C-2	97
DEC	C-5	101
Decision Data	C-6	105
IBM PCs and compatibles	C-2	97
IBM terminals	C-6	105
Macintosh	C-3	98
NCR 2900	C-2	97
NEC PowerMate	C-2	97
TeleVideo	C-4	100
Telex	C-6	105

For information about IBM terminals and illustrations of IBM keyboards, see the section beginning on page 103.

TABLE C-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

table continues

TABLE C-1
Common keyboard keys
(cont.)

Key	Code 39	ASCII Value	Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
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
:	/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 94

TABLE C-2
IBM (or compatible) PC
and NEC PowerMate
keyboard keys

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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)	$O	0F
Insert	(X36)	%U$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

table continues

TABLE C-2
IBM (or compatible) PC and NEC PowerMate keyboard keys (cont.)

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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				

TABLE C-3
Macintosh keyboard keys

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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

table continues

**TABLE C-3
Macintosh keyboard
keys (cont.)**

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	Code 39	ASCII Value
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
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 C-4
TeleVideo keyboard keys

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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
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
BACK-SPACE	(X8)	$H	08	CLEAR SPACE	(X59)	%U%F	803B

table continues

TABLE C-4
TeleVideo keyboard keys (cont.)

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	Code 39	ASCII Value
↑	(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 C-5
DEC keyboard keys

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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

table continues

TABLE C-5
DEC keyboard keys
(cont.)

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	Code 39	ASCII Value
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

TABLE C-5
DEC keyboard keys
(cont.)

Key	Mne-monic	Code 39	ASCII Value	Key	Mne-monic	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

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).

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 <u>C-1</u> and <u>C-2</u> 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 <u>C-1</u> 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 <u>C-6</u>.

FIGURE C-1
IBM 102-key
keyboard
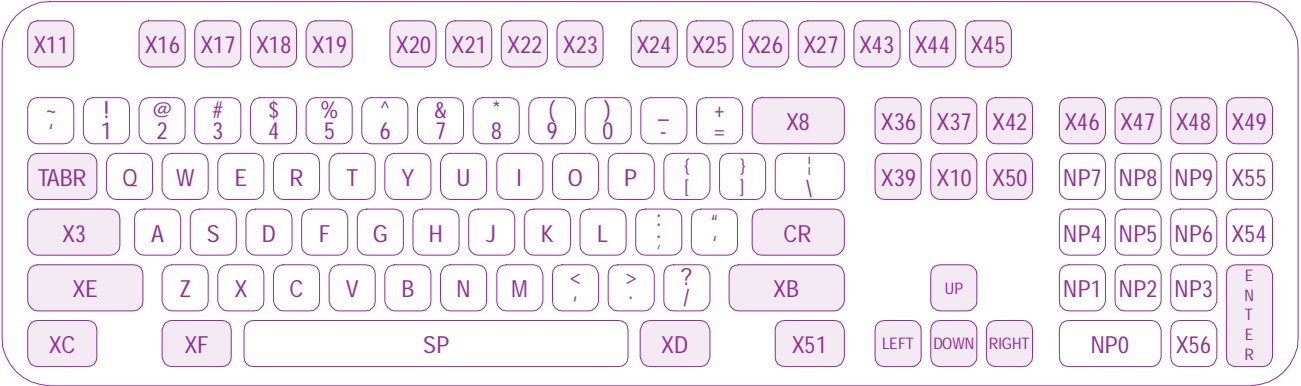
FIGURE C-2
IBM 122-key
keyboard
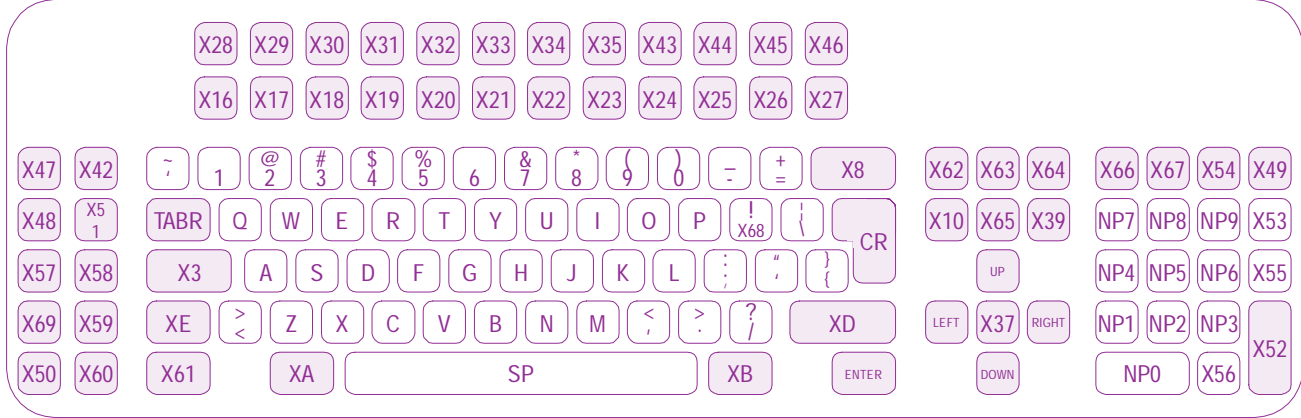
TABLE C-6
IBM terminal keyboard keys

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

table continues

Mne-monic	Code 39	ASCII Value	Mne-monic	Code 39	ASCII Value	Mne-monic	Code 39	ASCII Value
(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
(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								
(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		

Connector Configurations

Host Interface Connector

Pin #13   Pin #1

Pin #25   Pin #14
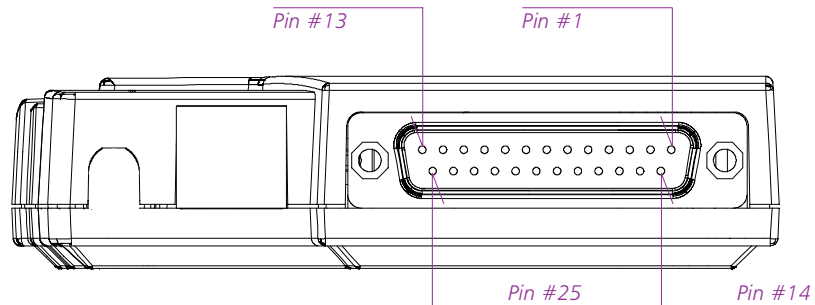
Pin #	Description	Usage Notes
1	Audio output	
2	No connection	Reserved
3	No connection	Reserved
4	No connection	Reserved
5	No connection	Reserved
6	Ready	Equivalent of Data Terminal Ready (DTR), Data Set Ready (DSR)

table continues

Pin #	Description	Usage Notes
7	Keyboard interface	Keyboard wedge only
8	Keyboard interface	Keyboard wedge only
9	Keyboard interface	Keyboard wedge only
10	Keyboard interface	Keyboard wedge only
11	Serial handshake in	Serial configuration only
12	Keyboard interface	Keyboard wedge only
13	Keyboard interface	Keyboard wedge only
14	Ground	Signal ground
15	Keyboard interface	Keyboard wedge only
16	Keyboard interface	Keyboard wedge only
17	Keyboard interface	Keyboard wedge only
18	Keyboard interface	Keyboard wedge only
19	Serial handshake out	Serial configuration only
20	Serial data in	Serial configuration only
21	Serial data out	Serial configuration only
22	Serial tap in	Serial configuration only
23	+5V	
24	+12V	Serial configuration only
25	Ground	Signal ground

Input 1 Connector

Pin #1   Pin #5

Pin #6   Pin #9
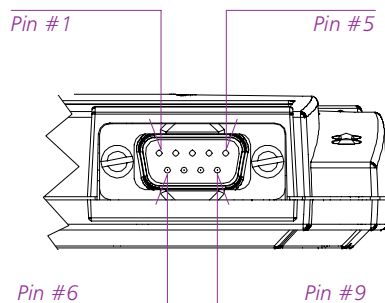
Pin #	Usage
1	Laser sync in / mag channel 1 data in
2	Bar code data in
3	Good-read out
4	Mag present in
5	Laser trigger in / mag channel 1 clock in
6	Laser-scan enable out / mag channel 2 clock in
7	Ground
8	Mag channel 2 data in
9	+5V

Input 2 Connector

Pin #1   Pin #5

Pin #6   Pin #9
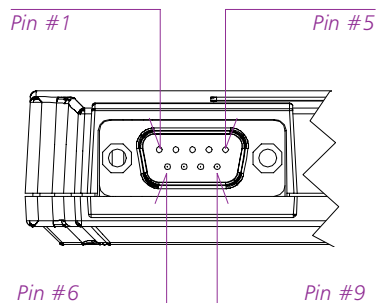
Pin #	Usage
1	Mag channel 1 data in
2	Not used
3	Not used
4	Mag present in
5	Mag channel 1 clock in
6	Mag channel 2 clock in
7	Ground
8	Mag channel 2 data in
9	+5V

Cloning Cable

(Percon Part No. 00-874-25)

||||||| NOTE *The clip latches on one connector have been removed for easy switching of slave units. See page 26 for information about cloning.*
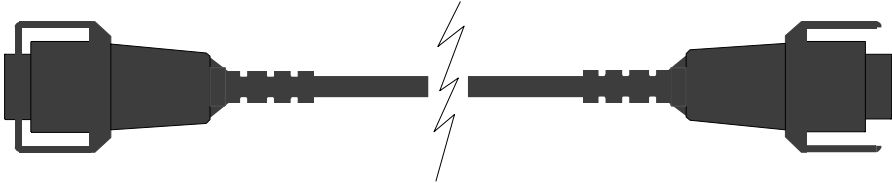
DE-9 (Female) To Input 1 on "Master"				**DE-9 (Female) To Input 1 on "Slave"**
LSYNC IN (Receive)	1		1	LSYNC IN (Receive)
	2		2	
TRANSMIT	3		3	TRANSMIT
	4		4	
	5		5	
	6		6	
GROUND	7		7	GROUND
	8		8	
+5V	9		9	+5V

Warranty and Technical Support

Warranty

The PowerWedge 10 decoder is warranted by Percon against defects in materials and workmanship for five (5) years 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 112.)

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 decoder to Percon. If so, contact Percon's Customer Service 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.

Customer Service/ Technical Support

If you have a question or problem that you are unable to resolve by reading the manual, you can get free technical assistance from Percon's Customer Service department. To contact Customer Service, 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.
Customer Service Dept.
1720 Willow Creek Circle, Suite 530
Eugene, OR 97402-9171

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Bar Code Menu

START	`* $ + $ - *`	**OFF**	`* 0 *`
ESC	`* % A *`	**ON**	`* 1 *`
//	`* / / *`	**2**	`* 2 *`
A	`* A *`	**3**	`* 3 *`
B	`* B *`	**4**	`* 4 *`
C	`* C *`	**5**	`* 5 *`
D	`* D *`	**6**	`* 6 *`
E	`* E *`	**7**	`* 7 *`
F	`* F *`	**8**	`* 8 *`
		9	`* 9 *`

0 `* 0 *`

1 `* 1 *`

PREDEFINED DEFAULTS

D0 `* $ + $ - D 0 E E *`

D1 `* $ + $ - D 1 E E *`

D2 `* $ + $ - D 2 E E *`