8680i

Wearable Mini Mobile Computer

User Guide

Disclaimer

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Customer Support

Technical Assistance

To search our knowledge base for a solution or to log in to the Technical Support portal and report a problem, go to www.hsmcontactsupport.com.

For our latest contact information, see www.honeywellaidc.com/locations.

Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To obtain warranty or non-warranty service, return your product to Honeywell (postage paid) with a copy of the dated purchase record. To learn more, go to www.honeywellaidc.com and select **Service & Repair** at the bottom of the page.

Limited Warranty

For warranty information, go to www.honeywellaidc.com and click **Get Resources** > **Product Warranty**.

GET STARTED

About This Manual

This User Guide provides installation and programming instructions for the 8680i wearable mini mobile computer. Product specifications, dimensions, warranty, and customer support information are also included.

Honeywell devices are factory programmed for the most common terminal and communications settings. If you need to change these settings, programming is accomplished by scanning the bar codes in this guide.

An asterisk (*) next to an option indicates the default setting.

Unpack Your Device

After you open the shipping carton containing the product, take the following steps:

- Check for damage during shipment. Report damage immediately to the carrier who delivered the carton.
- Make sure the items in the carton match your order.
- Save the shipping container for later storage or shipping.

8680i Overview

Battery

Battery latch

Right button

Trigger

User window

Scanner

Left button
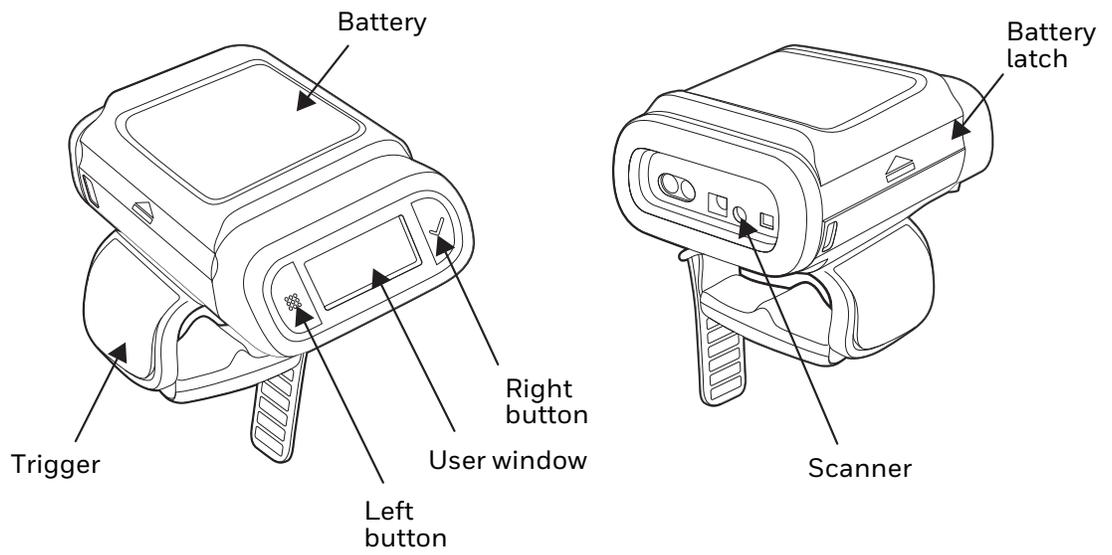
Attach the 8680i to Your Hand
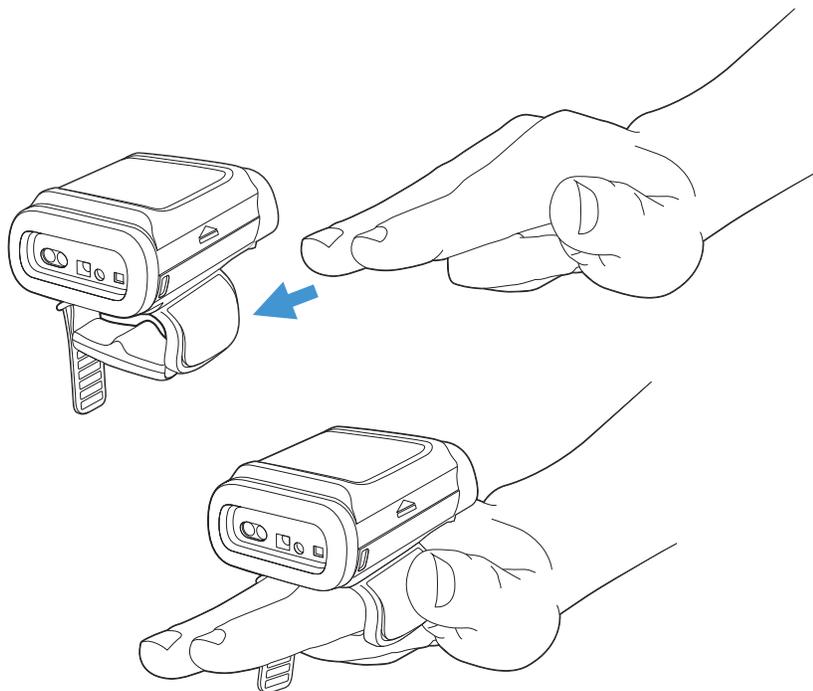
Pull the finger strap to secure it and tuck the excess strap length into the finger guide channel.
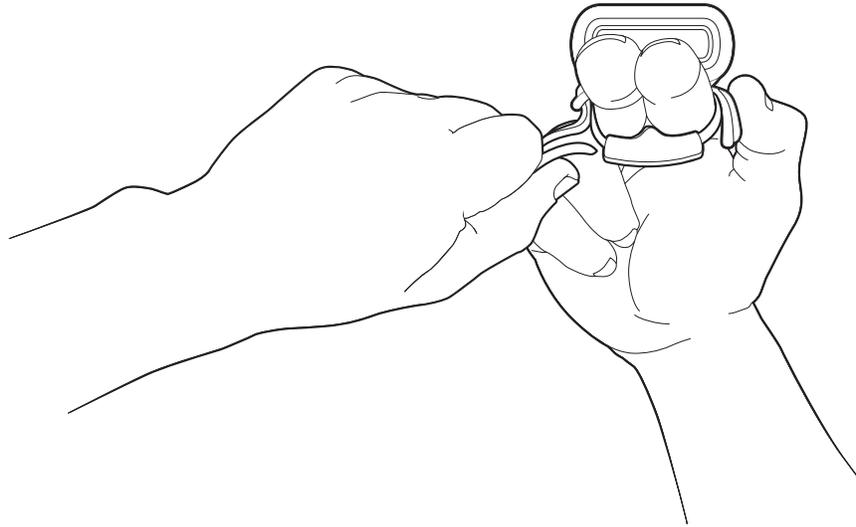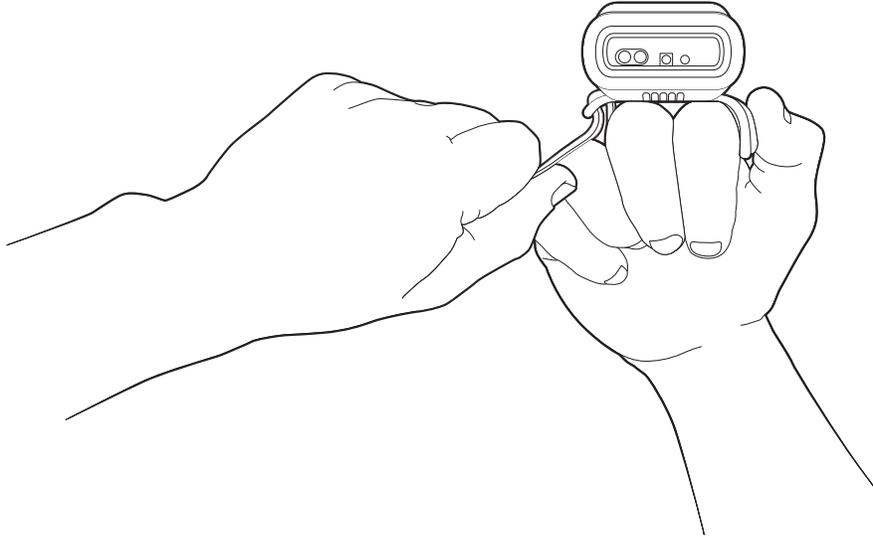
Right or Left Handed Operation

To release the finger trigger, turn over the 8680i. Slide the latch toward the user window to release the finger trigger. Turn the finger strap around and snap it into place to change the operation to the correct hand.
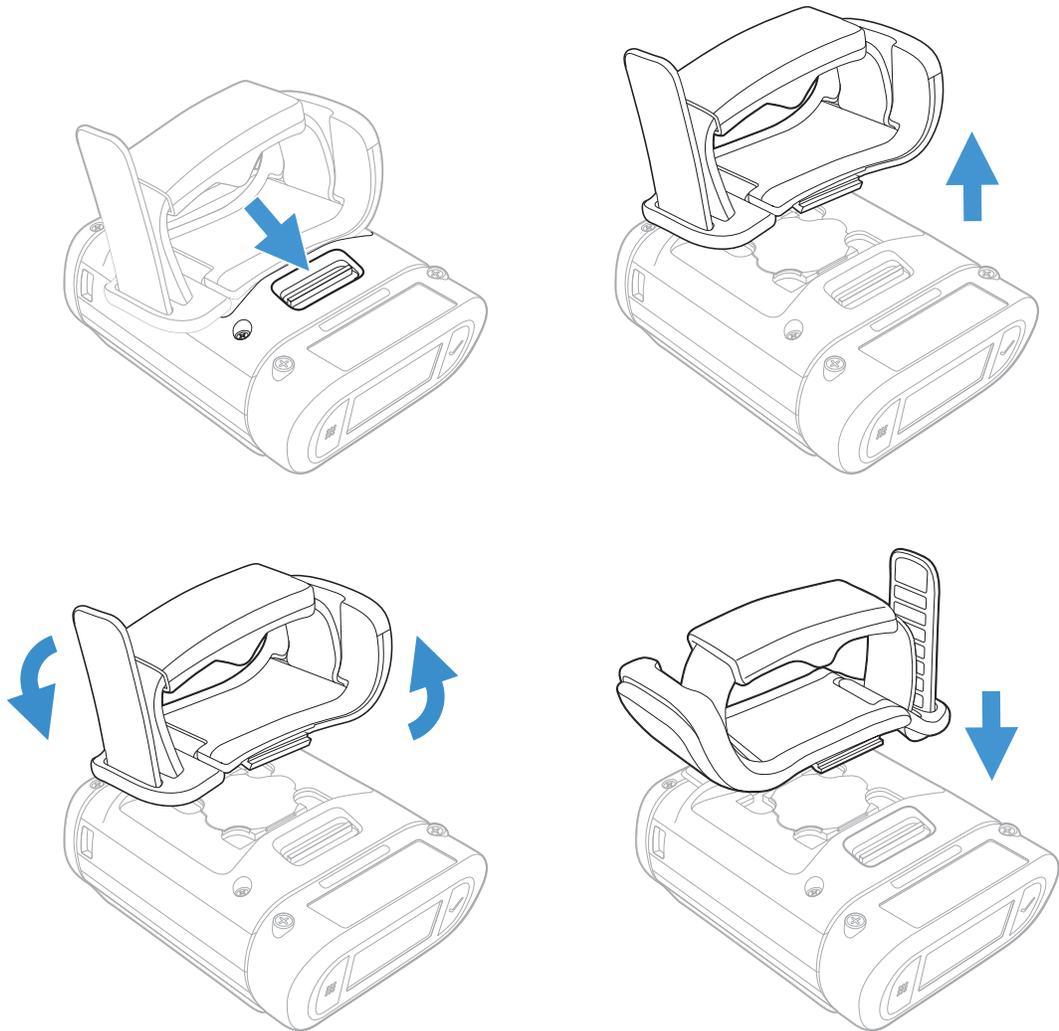
Power Up the 8680i

Press the trigger to power up the scanner. The battery, WiFi, and Bluetooth status appear in the window.

Battery and Charge Information

The battery must be fully charged before the first use. An MB4/MB12–BAT–SCN02 or an MB4/MB12–SCN02 Charging Station must be purchased separately.

Replace the Battery

When the battery is low, the 8680i beeps and vibrates and the window shows a **Battery Low** warning. You can also press both the right and left buttons at any time to view the battery's charge status.

Note: *The battery should be replaced in an environment free from excessive dust or particulate to avoid an internal buildup of dust in the unit.*

To replace the battery, squeeze the battery latch and lift up on the battery.
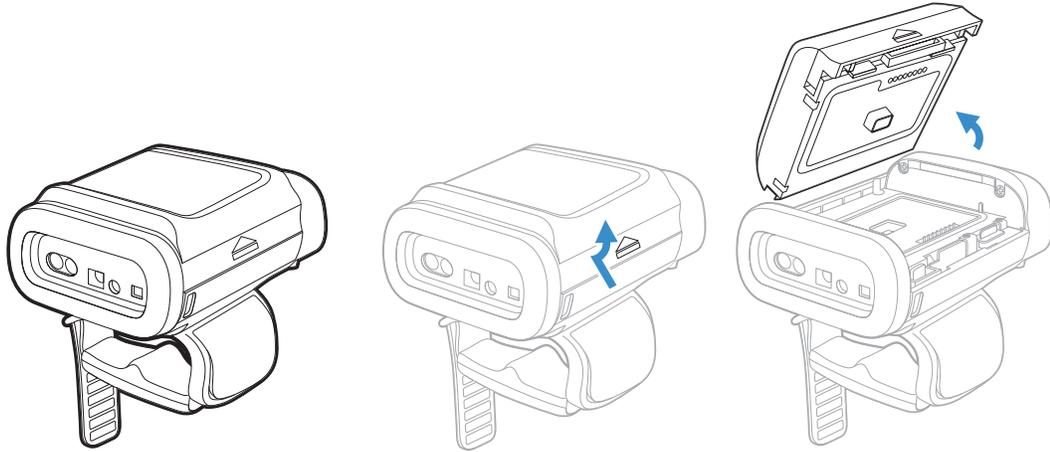
Replace the battery by snapping it in to the 8680i.

The BAT-SCN02 high capacity lithium ion battery or the BAT-SCN03 standard capacity lithium ion battery can be used. Batteries are not fully charged when shipped. The battery should be charged for a minimum of 4 hours before initial use to ensure optimal performance.

Caution: **There is a danger of explosion if the batteries are incorrectly replaced. Use only Honeywell lithium ion battery packs, model numbers BAT-SCN02 or BAT-SCN03 in this device. Use of any non–Honeywell battery may result in damage not covered by the warranty. Dispose of used batteries according to the recycle program for batteries as directed by the governing agency for the country where the batteries are to be discarded.**

Battery Recommendations

- The battery is a lithium ion cell that can be used without a full charge and can also be charged without fully discharging without impacting the battery life. There is no need to perform any charge/discharge conditioning on this type of battery.

- Replace a defective battery immediately since it could damage the 8680i.

- Although your battery can be recharged many times, it will eventually be depleted. Replace it after the battery is unable to hold an adequate charge.

- If you are not sure if the battery or charger is working properly, send it to Honeywell International Inc. or an authorized service center for inspection. Refer to Customer Support on page iii for additional information.

Safety Precautions for Lithium Batteries

- Do not place batteries in fire or heat the batteries.
- Do not store batteries near fire or other high temperature locations.
- Do not store or carry batteries together with metal objects.
- Do not expose batteries to water or allow the batteries to get wet.
- Do not connect (short) the positive and negative terminals, of the batteries, to each other with any metal object.
- Do not pierce, strike or step on batteries or subject batteries to strong impacts or shocks.
- Do not disassemble or modify batteries.

Proper Disposal of the Battery

When the battery has reached the end of its useful life, the battery should be disposed of by a qualified recycler or hazardous materials handler. Do not incinerate the battery or dispose of the battery with general waste materials. You may send the 8680i's battery to us. (postage paid). The shipper is responsible for complying with all federal, state, and local laws and regulations related to the packing, labeling, manifesting, and shipping of spent batteries. Contact the Customer Support (page iii) for recycling or disposal information. Since you may find that your cost of returning the batteries significant, it may be more cost effective to locate a local recycle/disposal company.

Charge the Battery

Refer to the MB4-SCN02/MB12-SCN02 Multi-Bay Scanner Charger Quick Start Guide or the MB4-BAT-SCN02/MB12-BAT-SCN02 Multi-Bay Battery Charger Quick Start Guide, available at www.honeywellaidc.com, for complete information about the operation of the chargers.

Multi-Bay Scanner Chargers

Line the 8680i's battery contacts up with the contacts in the charging pocket. Firmly press the 8680i straight down into the battery charging pocket. The LED to the left of the pocket lights up in white when the 8680i is properly inserted.
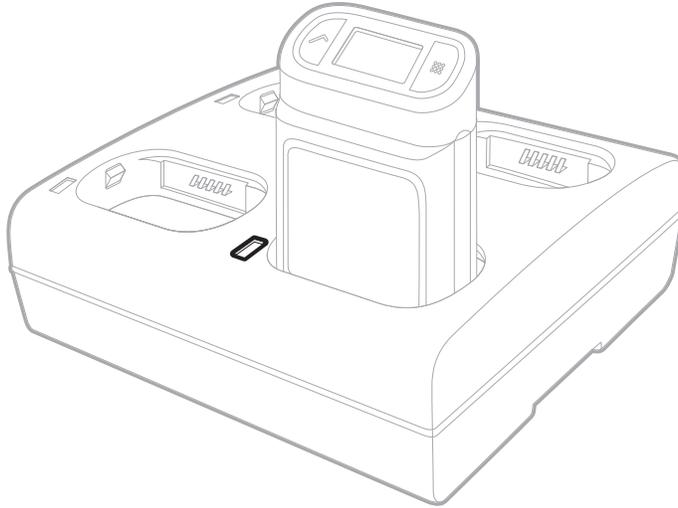
It is important that 8680is are inserted into the charging pocket correctly. Inserting the battery incorrectly could result in damage to the 8680i or the charger.

When the 8680i is placed in a charging pocket, the charger begins charging the battery. There is a slight delay while the charger evaluates the condition of the battery before charging begins. While charging, the user window shows the battery status.

Multi-Bay Battery Chargers

Line the battery's contacts up with the contacts on the charging pocket. Firmly press the battery into the battery charging pocket. The LED to the left of the pocket lights up in an amber color when the battery is properly inserted.
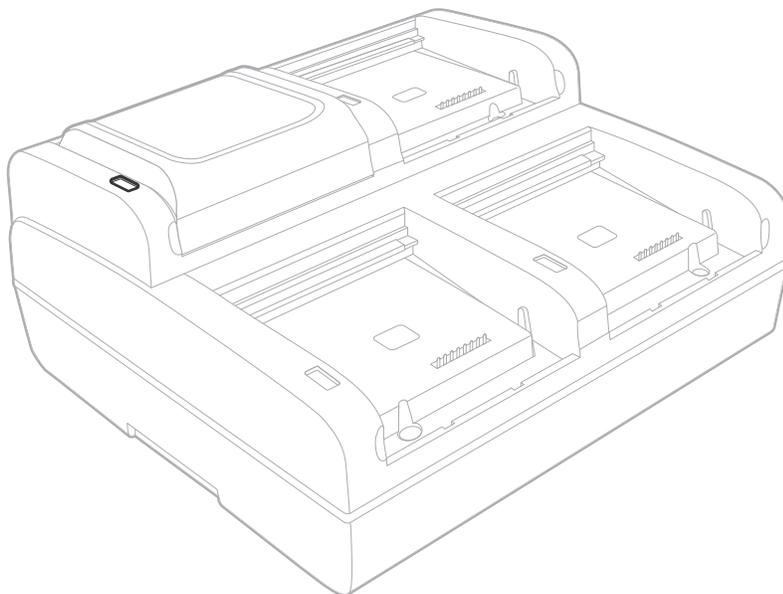
It is important that batteries are inserted into the charging pocket correctly. Inserting the battery incorrectly could result in damage to the battery or the charger.

When a battery is placed in a charging pocket, the charger begins charging the battery. There is a slight delay while the charger evaluates the condition of the battery before charging begins. While charging, the red LED on the battery charger indicates the battery has a low charge, yellow indicates a moderate charge, and green indicates the battery has been fully charged and can be removed.

User Window
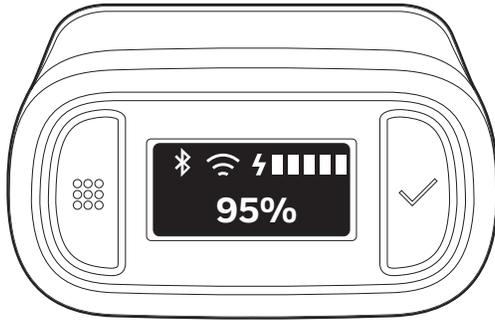
The window shows prompts for using the scanner in your environment. The buttons to the left and right of the window are used to scroll through the windows or to enter responses to screen prompts.

- Press both the right and left buttons at the same time to view the WiFi, Bluetooth, and battery status.
- Press and hold the left button for 6 seconds to restart the scanner.

WiFi and Bluetooth Status

The following symbols indicate the status of your WiFi and Bluetooth connections.

WiFi Icons	Indication
No WiFi icon	WiFi Off
	WiFi On - Strong Signal
	WiFi On - Weak Signal
	WiFi On - Poor Signal
	WiFi On and Disconnected
	WiFi - No Connection

Bluetooth Icons	Indication
No Bluetooth icon	Bluetooth Off
Flashing Bluetooth icon	Bluetooth Attempting to Connect
	Bluetooth On and Connected
	Bluetooth On and Disconnected
	Bluetooth - No Connection

Connect the 8680i to Your Network

Pair the 8680i with Bluetooth Devices

Note: *For additional security, your Bluetooth devices should require a PIN when pairing.*

Pair with a PC or Laptop Bluetooth Serial Port: Host Reconnect Mode

The 8680i can pair with host Bluetooth devices such as personal computers, laptops, and tablets. In this mode, the host will continually attempt to connect with the scanner. If the scanner and the host become disconnected, the host will manage the reconnection.

1. Scan the **Host Reconnect Mode** bar code below.

PAPSPP;BT_DNG1.

Host Reconnect Mode

2. Set your host device so it searches for other Bluetooth devices. (Refer to your host device's User's Guide for pairing instructions.)

3. Once your host device has located the scanner, select the 8680i scanner name from the list displayed.

Note: *See Enter a Bluetooth PIN on page 13 if your host device displays a PIN.*

The Bluetooth symbol appears in the scanner window when the scanner pairs with a host.

Pair with a PC or Laptop Bluetooth Serial Port: Scanner Reconnect Mode

In this mode, the scanner will continually attempt to connect with the host. If the scanner and the host become disconnected, the scanner will manage the reconnection.

1. Scan the **Scanner Reconnect Mode** bar code below.

BT_TRM0,DNG5.

Scanner Reconnect Mode

2. Set your host device so it searches for other Bluetooth devices. (Refer to your host device's User's Guide for pairing instructions.)

3. Once your host device has located the scanner, select the 8680i scanner name from the list displayed.

Note: *See Enter a Bluetooth PIN on page 13 if your host device displays a PIN.*

The Bluetooth symbol appears in the scanner window when the scanner pairs with a host.

Pair with a PC or Laptop Bluetooth: HID Keyboard Mode

In this mode, the 8680i pairs with a Bluetooth device using a HID keyboard.

1. Scan a **Bluetooth HID Keyboard Connect** bar code below.

PAPBTH.

* Bluetooth HID Keyboard Connect

PAPJKB.

Bluetooth HID Japanese Keyboard Connect

2. Set your host device so it searches for other Bluetooth devices. (Refer to your host device's User's Guide for pairing instructions.)

3. Once your host device has located the scanner, select the 8680i scanner name from the list displayed.

Note: *See Enter a Bluetooth PIN on page 13 if your host device displays a PIN.*

The Bluetooth symbol appears in the scanner window when the scanner pairs with a host.

Disconnect from the Host

Once your scanner has been connected to a host, you must disconnect it in order to communicate with a different device. Scan the **Bluetooth Disconnect** bar code to unlink the scanner from the currently linked host.

BT_DNG4,ADR.

Bluetooth Disconnect

Pair with Bluetooth Low Energy (BLE) Devices

Use the following codes to connect to Bluetooth low energy devices. Scan **HID BLE Connect** to connect the 8680i to Bluetooth Low Energy HID devices. Scan **Serial BLE Connect** to establish two-way communication between the 8680i and Bluetooth Low Energy serial devices.

PAPLEH.
HID BLE Connect

PAPTIO.
Serial BLE Connect

Pair with an Android™ Mobile Device

Tap and Pair

You can pair your Android™ phone with the 8680i by touching the devices together.

1. Scan the **NFC On** bar code with the 8680i.

BT_NFC1.
NFC On

BT_NFC0.
*NFC Off

2. Make sure the NFC setting is **On** in your phone.
3. Touch the Android phone to the scanner.
4. The phone recognizes the scanner and prompts you to pair.
5. Verify the pairing of the 8680i in your phone's Bluetooth settings.

Pair with an Android, Apple™ or Windows® Mobile Device

The 8680i can pair with Android, Apple, and Windows mobile devices, excluding Windows CE and Mobile.

1. *The 8680i only supports connecting to Apple devices using Bluetooth HID mode.*Set your mobile device so it searches for other Bluetooth devices. (Refer to your mobile device's User's Guide for pairing instructions.)

1. Scan the **Bluetooth HID Keyboard Connect** bar code below.

PAPBTH.
Bluetooth HID Keyboard Connect

2. On the mobile device, the 8680i scanner is shown as a keyboard. Click on it to pair.

Note: *See Enter a Bluetooth PIN on page 13 if your host device displays a PIN.*

The Bluetooth symbol appears in the scanner window when the scanner pairs with a mobile device.

Enter a Bluetooth PIN

If your host device does not automatically pair with the 8680i, a PIN is displayed. This PIN must be scanned within 30 seconds. Using the 8680i, you must quickly scan **Bluetooth PIN Code** below, then scan the numeric bar code(s) for the PIN code from the chart below, then scan the **Save** bar code.

BT_PIN.
Bluetooth PIN Code

K0K
0

K1K
1

K2K
2

K3K
3

K4K
4

||| ||| ||| ||| ||| |||
K5K
5

||| ||| ||| ||| ||| |||
K6K
6

||| ||| ||| ||| ||| |||
K7K
7

||| ||| ||| ||| ||| |||
K8K
8

||| ||| ||| ||| ||| |||
K9K
9

||| ||| ||| ||| ||| |||
MNUSAV.
Save

The Bluetooth symbol appears in the scanner window when the scanner pairs with a host.

Virtual Keyboard

Once your 8680i has been connected directly to a smart phone or laptop, you can toggle the virtual keyboard on your device using the 8680i trigger. If you have paired with an Apple device, the on-screen keyboard is activated by pressing the 8680i trigger twice, quickly. If you have paired with an Android device (v 4.4 and higher), the on-screen keyboard must be configured by going to **Settings – Language & input**. Tap on **Default** and change the setting for **Hardware Physical keyboard** to **Off**.

Pair with a Honeywell Vehicle Mount Computer

The 8680i can pair with Honeywell vehicle mount computers, such as the Thor VM1 or VM2, or with Tecton mobile computers.

1. Scan the **Bluetooth HID Keyboard Disconnect** bar code below.

PAPSPP.

Bluetooth HID Keyboard Disconnect

2. Use the 8680i to scan the EZPairing bar code that is either supplied with the device, attached to the device, or displayed on the screen. The EZPairing bar code begins with {FNC3} LnkB, followed by 12 digits, like the sample below.

LnkBxxxxxxxxxxxx

The Bluetooth symbol appears in the user window when the 8680i pairs with a host. Once the 8680i battery is charged and you have paired it to a host device, you may begin scanning bar codes. Verify the 8680i operation by scanning a bar code from the Sample Symbols, beginning on page 225.

Pair with a Honeywell Communication and Charge Base or Access Point

The 8680i can communicate with the following Honeywell Communication and Charge base (CCB) and Honeywell Bluetooth Access Points:

Granit CCBs:

- CCB02-100BT-07N

- CCB05-100BT-07N

Xenon CCBs:

- CCB01-010BT-07N

Access Points:

- AP-100BT-07N

- AP05-100BT-07N

- AP-010BT-07N

To connect to a CCB or Access Point, scan the **CCB/AP Connect** bar code. To remove this connection, scan the **CCB/AP Disconnect.**

BT_TRM0;BT_EHM0;WIDSCN0.
CCB/AP Connect

BT_EHM1,DNG1;WIDSCN1.
CCB/AP Disconnect

Note: *The 8680i cannot be charged with a CCB.*

1. Turn on the computer (laptop/desktop) that hosts the CCB or Access Point and be sure all the CCB or Access Point connections have been made.

2. Apply the linking bar code that came with your CCB or Access Point to that device.

3. Scan the linking bar code on the CCB or Access Point to establish a connection between the CCB or Access Point and the scanner. The scanner emits a short beep and a green check mark appears in the User Window to confirm a connection with the CCB or Access Point.
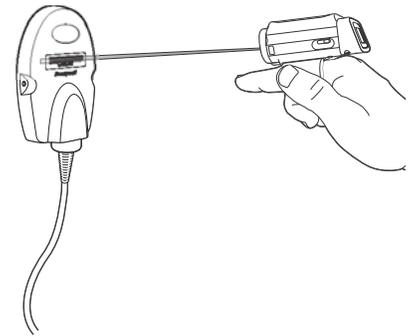
Configure the 8680i with EZConfig Cloud for Scanning

Use the EZConfig Cloud for Scanning tool to configure your 8680i online:

1. Access the Honeywell web site at www.honeywellaidc.com

2. Click on the **Browse Products** tab. Under **Software**, select **Device Management**.

3. Click on **EZConfig Cloud for Scanning**.

4. Scroll to the bottom of the page and click on **Register for free access now** to sign up.

5. Once EZConfig Cloud is installed, scan the **Bluetooth Connect – EZCS** bar code below.

PAPSPP;BT_DNG1.
Bluetooth Connect – EZCS

6. Open EZConfig Cloud to configure your 8680i.

Connect the 8680i to WiFi

Note: *WiFi capability is only supported by the advanced version of the 8680i.*

The 8680i goes into sleep mode when there is no activity for 10 seconds. It must be awake to connect to WiFi. Press the trigger to make sure it is awake for this process.

The 8680i can be configured for WiFi networks using EZConfig Cloud for Scanning.

1. See Reset the Factory Defaults on page 173 to install the EZConfig software.
2. Use your interface cable to connect the 8680i to your PC and open EZConfig.
3. Select the **Scan Data Window** tab, then the **Create WiFi Bar Code** tab.
4. Access the WiFi settings on your PC.
5. When your WiFi list appears, select the network to which you want to connect the 8680i and click on **Properties**.
6. Use the information shown for the **IPv4 address**, the **IPv4 DNS servers**, and the **network name** to fill in the EConfig screen.

Note: *The TCP Port is always **3390**.*

7. Click on either **Create 1D Wifi Bar Code** or **Create 2D Wifi Bar Code**.
8. Print the bar code and scan it with the 8680i to connect to the WiFi network.

Reading Techniques

Wrist Position When Scanning
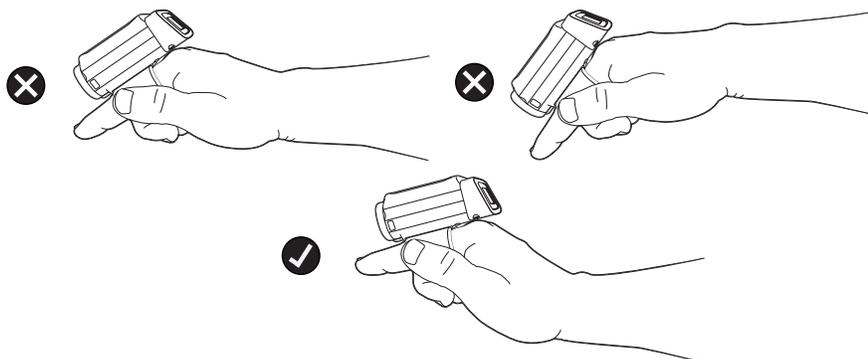
⚠️ **Warning: Do not stare directly into the laser beam.**

Center the Aimer

The 8680i has a view finder that projects a bright aiming pattern. This aiming pattern should be centered over the bar code, but it can be positioned in any direction for a good read.

Linear bar codes with aiming pattern

2D Matrix symbol with aiming pattern
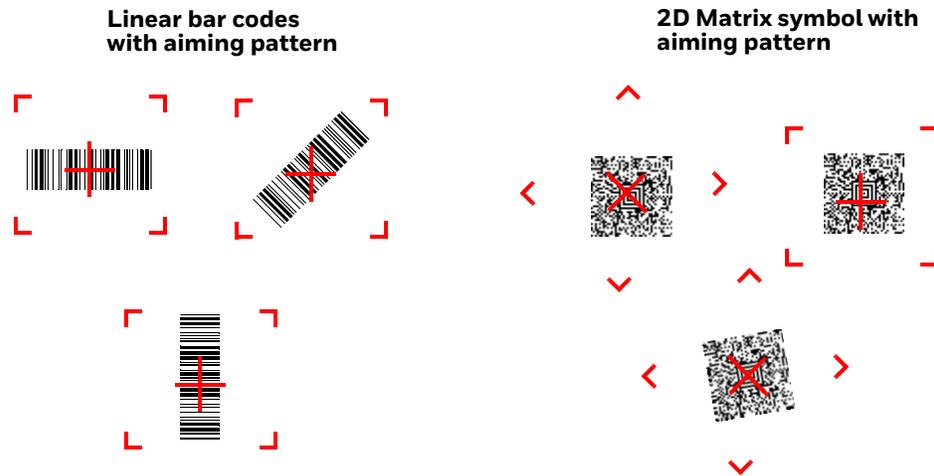
The aiming pattern is smaller when the 8680i is closer to the code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit. To read single or multiple symbols (on a page or on an object), hold the 8680i at an appropriate distance from the target, press the trigger, and center the aiming pattern on the symbol. If the code being scanned is highly reflective (e.g., laminated), it may be necessary to tilt the code up 15° to 18° to prevent unwanted reflection.

Menu Bar Code Security Settings

Honeywell scanners are programmed by scanning menu bar codes or by sending serial commands to the 8680i. If you want to restrict the ability to scan menu codes, you can use the Menu Bar Code Security settings. Please contact the nearest technical support office (see Technical Assistance on page iii) for further information.

Set Custom Defaults

You have the ability to create a set of menu commands as your own, custom defaults. To do so, scan the **Set Custom Defaults** bar code below before scanning the menu commands for your custom defaults. If a menu command requires scanning numeric codes from the Programming Chart, then a **Save** code, that entire

sequence is saved to your custom defaults. When you have entered all the com-
mands you want to save for your custom defaults, scan the **Save Custom Defaults**
bar code.

Set Custom Defaults

Save Custom Defaults

Note: *Scanning the **Save Defaults** bar code also causes both the 8680i and the host to
perform a reset and become unlinked. You must relink (pair) the 8680i to the host.*

You may have a series of custom settings and want to correct a single setting. To do
so, just scan the new setting to overwrite the old one. For example, if you had previ-
ously saved the setting for Beeper Volume at Low to your custom defaults, and
decide you want the beeper volume set to High, just scan the **Set Custom Defaults**
bar code, then scan the **Beeper Volume High** menu code, and then **Save Custom
Defaults**. The rest of the custom defaults remain, but the beeper volume setting is
updated.

Reset Custom Defaults

If you want the custom default settings restored to your 8680i, scan the **Activate
Custom Defaults** bar code below. This is the recommended default bar code for
most users. It resets the 8680i to the custom default settings. If there are no cus-
tom defaults, it resets the 8680i to the factory default settings. Any settings that
have not been specified through the custom defaults are defaulted to the factory
default settings.

Activate Custom Defaults

Note: *The 8680i resets and becomes unlinked from the host after using the Defaults
commands. See Auto Reconnect Mode on page 22 to relink the 8680i.*

WIRELESS SYSTEM OPERATION

The following information describes wireless settings. For information about con-
necting to a wireless or Bluetooth network, see Connect the 8680i to Your Network,
beginning on page 10.

Change the 8680i's Bluetooth PIN Code

Some devices require a PIN code as part of the Bluetooth security features. The
8680i default PIN is **1234**, which you may need to enter the first time you connect
to your host. When using multiple 8680is, you may want to change the PIN so each
8680i is uniquely identified. The PIN code must be between 1 and 16 characters.
To change the PIN for the 8680i, scan the bar code below and then scan the appro-
priate numeric bar codes from the Programming Chart, beginning on page 227.
Scan **Save** to save your selection.

BT_PIN.
Bluetooth PIN

Minimize Bluetooth/ISM Band Network Activity

The settings described below can help you customize the relinking behavior of your
wireless system to obtain the best compromise between convenience and low
interference.

Note: *ISM band refers to the 2.4 to 2.48 GHz frequency band used by wireless networks,*
cordless phones, and Bluetooth.

Auto Reconnect Mode

Auto Reconnect controls whether or not the 8680i automatically begins the relink process when a loss of connection is detected. When the **Auto Reconnect On** bar code is scanned, the 8680i begins the relink process immediately, without user intervention. *Default = Auto Reconnect On.*

BT_ACM1.

* Auto Reconnect On

BT_ACM0.
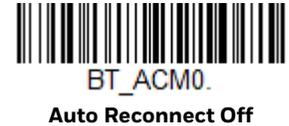
Auto Reconnect Off

Note: *If you are connecting to a Bluetooth Interface Module, set* **Auto Reconnect** *to* **Off**.

The table below shows the results of the Auto Reconnect On and Off settings:

Event	Auto Reconnect On	Auto Reconnect Off
8680i out of range	Relink occurs automatically. If maximum number of link attempts is unsuccessful, then the 8680i must be relinked by either pressing the trigger or relinking the 8680i to the host. See Maximum Link Attempts on page 22.	The 8680i is relinked by pressing the trigger or relinking to the host.
Host reset (firmware upgrade or power cycle)	8680i behaves as if out of range.	No attempt to relink made while host is powered off. Trigger must be pressed to initiate relinking.
8680i power down due to Power Time-Out Timer setting (see page 2-27)	Trigger must be pressed.	
8680i reset due to firmware upgrade	Relink occurs automatically.	
8680i reset due to battery change	Relink occurs automatically.	

Maximum Link Attempts

The Maximum Link Attempts setting controls the number of times the 8680i tries to form a connection with a host. During the connection setup process, the 8680i transmits in order to search for and connect to a host. In order to prevent continuous transmissions that could interfere with other users of the ISM band, the number of attempts to connect is limited by this setting. After the maximum number of attempts is reached, the 8680i does not attempt to reconnect to a host. Pressing the trigger, scanning a host linking bar code, or pairing the 8680i with a host resets the attempt count and the 8680i tries to link again.

Scan the **Maximum Link Attempts** bar code, then scan the number of attempts for the setting (from 0-100) from the Programming Chart, beginning on page 227. Scan **Save** to save the setting. *Default = 0.*

BT_MLA.
Maximum Link Attempts

Note: *When Auto Reconnect Mode is On, setting Maximum Link Attempts to zero causes the 8680i to try to link until the Power Time-Out Timer setting (see* page 2-27*) expires. When Auto Reconnect Mode is Off, setting Maximum Link Attempts to zero causes the 8680i to only attempt linking one time after a trigger press.*

Relink Time-Out

Relink Time-Out controls the idle time between relink attempts. An attempt to link the 8680i to a host typically lasts up to 5 seconds. This is the time when the 8680i is actually attempting a contact. Relink Time-Out controls the amount of time, in seconds, that elapses between the end of one connection attempt and the start of the next.

Note: *The length of time for an attempt depends on the number of 8680is that are connected to a host. An extra 7 seconds may be required when a connection is successful.*

Scan the **Relink Time-Out** bar code, then scan the number of seconds for the setting (from 1-100) from the Programming Chart, beginning on page 227. Scan **Save** to save the setting. *Default = 3 seconds.*

BT_RLT.
Relink Time-Out

Bluetooth/ISM Network Activity Examples

Default values

When the 8680i goes out of range, the 8680i repeatedly attempts to connect to the host. Each attempt consists of approximately 5 seconds of active time followed by 3 seconds of idle time. After one hour, the 8680i powers off and data is lost.

Maximum Link Attempts set to 15
Other values at default setting

When the 8680i goes out of range, 15 attempts are made to link to the host. Each attempt consists of approximately 5 seconds of active time followed by 3 seconds of idle time. After 15 cycles (8*15 =120), or about 2 minutes, the 8680i stops trying to connect to the host. After one hour, the 8680i powers off and data is lost.

Auto Reconnect Mode set to 0
Maximum Link Attempts set to 15
Other values at default setting

When the 8680i goes out of range, no action is taken to relink. When the trigger is pressed, 15 attempts are made to link to the host. Each attempt consists of approximately 5 seconds of active time followed by 3 seconds of idle time. After 15 cycles (8*15 =120), or about 2 minutes, the 8680i stops trying to connect to the host. After one hour, the 8680i powers off and data is lost. Refer to Auto Reconnect Mode, page 22, to review other events that can start the relink process.

Auto Reconnect Mode set to 1
Maximum Link Attempts set to 0
Relink Time-Out set to 10
Scanner Power Time-Out Timer set to 1800

Note: *See Scanner Power Time-Out Timer on page 2-27.*

The 8680i attempts to connect to the host every 15 seconds, measured from one attempt start to the next attempt start. After one half hour, the 8680i powers off.

Communication Between the 8680i and the Host

When data is scanned, the data is sent to the host system. The 8680i provides immediate feedback in the form of a "good read" indication on the screen, an audible beep, and a vibration. This indicates only that the bar code has been scanned correctly.

Program the 8680i and Host

When using the 8680i and host together as a system, menu parameters and configuration settings are stored in the host. If the 8680i is not linked to a host, configuration settings are stored in the 8680i.

RF (Radio Frequency) Operation

The wireless system uses a two-way Bluetooth radio utilizing adaptive frequency hopping (AFH) to transmit and receive data between the 8680i and the host. Designed for point-to-point and multiple point-to-single-point applications, the radio operates using a license-free ISM band, which sends relatively small data packets at a fast data rate over a radio signal with randomly changing frequencies. This makes the wireless system highly responsive to a wide variety of data collection applications and resistant to noisy RF environments. The communication range between the 8680i and host, depending on the environment, is 328 feet (100m). See Flexible Power Management, page 28, for information about controlling this range.

System Conditions

The components of the wireless system interact in specific ways as you move the 8680i out of range, bring the 8680i back in range, or swap 8680is between two hosts. The following information explains the wireless system operating conditions.

8680i Is Out of Range

The 8680i is in communication with its host, even when it is not transmitting bar code data. Whenever the 8680i can't communicate with the host for a few seconds, it is out of range. If the 8680i is out of range and you scan a bar code, the 8680i issues an error tone indicating that there was no communication with the host. Refer to Out-of-Range Alarm, page 26 and Auto Reconnect Mode, page 22.

8680i Is Moved Back Into Range

The 8680i relinks if the 8680i or the host have been reset, or the 8680i comes back into range. If the 8680i relinks, you will hear a single chirp when the relinking process (uploading of the parameter table) is complete. Refer to Out-of-Range Alarm on page 26 and Auto Reconnect Mode, page 22 for further information.

Reset Scanner

Scanning this bar code reboots the 8680i and causes it to relink with the host.

RESET_.

Reset Scanner

Scanner Report

Scan the bar code below to generate a report for the connected 8680is. The report indicates the port, 8680i name, and address. To assign a name to your 8680i, refer to Device Name, page 35.

RPTSCN.

Scanner Report

Scanner Address

Scan the bar code below to determine the address of the 8680i you are using.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_LDA.
Scanner Address

Unlink a Scanner

If a host has an 8680i linked to it, that 8680i must be unlinked before a new 8680i can be linked. Once the previous 8680i is unlinked, it no longer communicates with the host. To unlink the 8680i from a host, scan the **Unlink Scanner** bar code below.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_RMV.
Unlink Scanner

Override Locked Scanner

If you need to replace a broken or lost 8680i that is linked to a host, scan the **Override Locked Scanner** bar code below with a new 8680i and pair that 8680i with the host. The locked link is overridden; the broken or lost 8680i's link with the host is removed, and the new 8680i is linked.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_RPL1.
Override Locked Scanner
(Single Scanner)

Out-of-Range Alarm

If your 8680i is out range of the host, an alarm sounds from the 8680i. The alarm stops when the 8680i is moved closer to the host, when the host links to another 8680i, or when the alarm duration expires. To set the alarm duration, scan the bar code below and then set the time-out duration (from 0-3000 seconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 0 sec (no alarm).*

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_ORD.
Scanner Alarm Duration

Note: *If you are out of range when you scan a bar code, you will receive an error tone even if you do not have the alarm set because the data could not be sent to the host.*

Alarm Sound Type

Change the alarm type by scanning the following bar code and then scanning a digit (0-7) bar code and the **Save** bar code on the Programming Chart, beginning on page 227. *Default = 0.*

The sounds are as follows:

Setting	Sound
0	3 long beeps, medium pitch
1	3 long beeps, high pitch
2	4 short beeps, medium pitch
3	4 short beeps, high pitch
4	single chirps, medium pitch
5	2 chirps, then 1 chirp, medium pitch
6	single chirps, high pitch
7	2 chirps, then 1 chirp, high pitch

BT_ORW.

Scanner Alarm Type

Scanner Power Time-Out Timer

When there is no activity within a specified time period, the 8680i enters low power mode. Scan the appropriate power time-out bar code to change the time-out duration (in seconds).

Note: *Scanning zero (0) is the equivalent of setting no time-out.*

If there are no trigger presses during the timer interval, the 8680i goes into power down mode. Whenever the trigger is pressed, the timer is reset. The 8680i does not go into power down mode when the battery is charging. *Default = 3600 seconds.*

BT_LPT0.

0 seconds

BT_LPT200.

200 seconds

BT_LPT400.

400 seconds

BT_LPT900.

900 seconds

BT_LPT3600.

* 3600 seconds

BT_LPT7200.

7200 seconds

Note: *When the 8680i is in power down mode, press the trigger to power the unit back up. There is a set of power up beeps and a delay of up to a few seconds for the radio to join. The 8680i is then ready to use.*

Flexible Power Management

If you are experiencing network performance issues and suspect the 8680i is interfering with other devices, you can turn down the power output of the 8680i. This reduces the range between the 8680i and a host as shown in the following illustration:
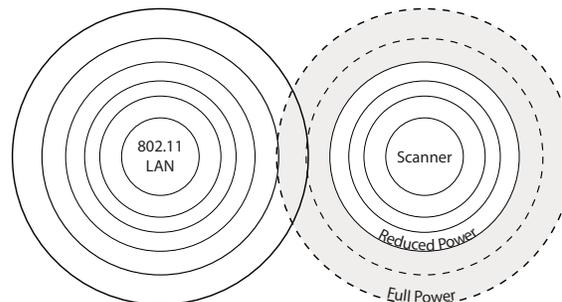
Scan one of the bar codes below to set the 8680i's power output to **Full Power** (100%), **Medium Power** (35%), **Medium Low Power** (5%), or **Low Power** (1%). *Default = Full Power.*

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_TXP100.
* Full Power

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_TXP35.
Medium Power

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_TXP5.
Medium Low Power

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
BT_TXP1.
Low Power

Batch Mode

Batch mode is used to store bar code data when a scanner is out of range of its base or Access Point, or when performing inventory. The data is transmitted to the base or Access Point once the scanner is back in range or when the records are manually transmitted.

Automatic Batch Mode stores bar code data when the scanner is out of range of the base or Access Point. The data is automatically transmitted to the base or Access Point once the scanner is back in range. When the scanner's buffer space is full, any bar codes scanned generate an error tone. In order to scan bar codes again, the scanner must be moved back into range of the base or Access Point so data can be transmitted.

Inventory Batch Mode stores bar code data, whether or not you are in range of the base or Access Point. To transmit the stored data to the base or Access Point, either place the scanner in the base, or scan Transmit Inventory Records (page 34). When the scanner's buffer space is full, any bar codes scanned generate an error tone. In order to scan bar codes again, the data must be transmitted to the base or Access Point. Once the data is transmitted, it is cleared in the scanner.

Persistent Batch Mode is the same as Inventory Batch Mode, except that once the data is transmitted to the base or Access Point, it is retained in the scanner. If you want to transmit more than once, you can do so using this mode. In order to clear the scanner's buffer, you must scan Clear All Codes (see page 34).

Default = Batch Mode Off.

```
BATENA0.
```
* Batch Mode Off

```
BATENA1.
```
Automatic Batch Mode

```
BATENA2.
```
Inventory Batch Mode

```
BATENA3.
```
Persistent Batch Mode

Batch Mode Beep

When scanning in , the scanner beeps every time a bar code is scanned. When Batch Mode Beep is **On**, you will also hear a click when each bar code is sent to the host. If you do not want to hear these clicks, scan **Batch Mode Beep Off**. *Default = Batch Mode Beep On.*

```
BATBEP0.
```
Batch Mode Beep Off

```
BATBEP1.
```
* Batch Mode Beep On

Batch Mode Storage

When a scanner is storing data during a Batch Mode process, you can select whether the data is stored in Flash memory or in RAM.

Flash Storage: The scanner writes any untransmitted data to flash memory prior to powering down. The data will still be there when the scanner powers back up. However, the scanner will power down, even with untransmitted data, if it reaches a power down timeout or if the battery power is very low.

RAM Storage: The scanner will not power down while it contains data that has not been transmitted to the base or Access Point, even if it reaches a power down timeout. However, if the scanner runs out of power, it will power down and the data will be lost.

Default = Flash Storage.

BATNVS1.

* Flash Storage

BATNVS0.

RAM Storage

Batch Mode Quantity

When in Batch Mode, you may wish to transmit the number of multiple bar codes scanned, rather than a single bar code multiple times. For example, if you scan three bar codes called XYZ with **Batch Mode Quantity Off**, when you transmit your data it will appear as XYZ three times. Using **Batch Mode Quantity On** and the Quantity Codes (page 32), you could output your data as "XYZ, 00003" instead.

Note: *If you wish to format your output, for example, place a CR or tab between the bar code data and the quantity, refer to Data Format beginning on page 69.*

Default = Batch Mode Quantity Off.

BATQTY0.

* Batch Mode Quantity Off

BATQTY1.

Batch Mode Quantity On

Enter Quantities

Quantity Codes (page 32) allow you to enter a quantity for the last item scanned, up to 9999 (default = 1). Quantity digits are shifted from right to left, so if a fifth digit is scanned, the first digit scanned is discarded and the second, third and fourth digits are moved to the left to accommodate the new digit.

For example, if the Quantity 5 bar code is scanned after the quantity has been set to 1234, then the 1 is dropped, the quantity will be 2345.

Example: Add a quantity of 5 for the last item scanned.

1. Scan the item's bar code.
2. Scan the quantity **5** bar code.

Example: Add a quantity of 1,500 for the last item scanned.

1. Scan the item's bar code.

2. Scan the quantity **1** bar code.

3. Scan the quantity **5** bar code.

4. Scan the quantity **0** bar code.

5. Scan the quantity **0** bar code.

Example: Change a quantity of 103 to 10.

To correct an incorrect quantity, scan the quantity 0 bar code to replace the incorrect digits, then scan the correct quantity bar codes.

1. Scan the quantity **0** bar code to change the quantity to 1030.

2. Scan the quantity **0** bar code to change the quantity to 0300.

3. Scan the quantity **1** bar code to change the quantity to 3001.

4. Scan the quantity **0** bar code to change the quantity to 0010.

Default = 1.

Quantity Codes

BATNUM0.
0

BATNUM1.
1

BATNUM2.
2

BATNUM3.
3

BATNUM4.
4

BATNUM5.
5

BATNUM6.
6

||||||||||||||||||||||||||||
BATNUM7.

7

||||||||||||||||||||||||||||
BATNUM8.

8

||||||||||||||||||||||||||||
BATNUM9.

9

Batch Mode Output Order

When batch data is transmitted, select whether you want that data sent as **FIFO** (first-in first-out), or **LIFO** (last-in first-out). *Default = Batch Mode FIFO.*

||||||||||||||||||||||||||||
BATLIF0.

* Batch Mode FIFO

||||||||||||||||||||||||||||
BATLIF1.

Batch Mode LIFO

Total Records

If you wish to output the total number of bar codes scanned when in Batch Mode, scan **Total Records**.

||||||||||||||||||||||||||||
BATNRC.

Total Records

Delete Last Code

If you want to delete the last bar code scanned when in Batch Mode, scan **Delete Last Code**.

||||||||||||||||||||||||||||
BATUND.

Delete Last Code

Clear All Codes

If you want to clear the scanner's buffer of all data accumulated in Batch Mode, scan **Clear All Codes**.

BATCLR.
Clear All Codes

Transmit Records to Host

If you are operating in Inventory Batch Mode (see Inventory Batch Mode on page 30), you must scan the following bar code to transmit all the stored data to the host system.

BAT_TX.
Transmit Inventory Records

Batch Mode Transmit Delay

Sometimes when accumulated scans are sent to the host system, the transmission of those scans is too fast for the application to process. To program a transmit delay between accumulated scans, scan one of the following delays. *Default = Off.*

Note: *In most cases, a short (250 ms (milliseconds)) delay is ideal, however, longer delays may be programmed. Contact Technical Support (page iii) for additional information.*

BATDLY0.
*** Batch Mode Transmit Delay Off
(No Delay)**

BATDLY250.
**Batch Mode Transmit Delay Short
(250 ms)**

BATDLY500.
**Batch Mode Transmit Delay Medium
(500 ms)**

BATDLY1000.
**Batch Mode Transmit Delay Long
(1000 ms)**

Device Name

You may assign a name to each 8680i you are using for identification purposes. For example, you may want to have a unique identifier for an 8680i that is receiving specific commands sent from the host.

The default name is in the format "Honeywell–8680i–SN-*############* (12 digit serial number)". If you have more than one 8680i linked to a host and they all have the same name, the first 8680i linked to the host receives commands. When renaming a series of 8680is with identical names, unlink all except one of the 8680is from the host.

Perform the rename operation using either the bar codes on , or by sending the serial command *:DeviceName:***BT_NAM***NewName.* where *DeviceName* is the current name of the 8680i, and *NewName* is the new name for the 8680i. If you wish to change the names of additional 8680is, link them one at a time and repeat the *:DeviceName:***BT_NAM***NewName.* command for each 8680i.

To rename 8680is with sequential numeric names, scan the bar codes below. Scan the **Reset** code after each name change and wait for the 8680i to relink to the host before scanning a bar code to rename the next 8680i.

BT_NAM0001.
0001

BT_NAM0002.
0002

BT_NAM0003.
0003

BT_NAM0004.
0004

BT_NAM0005.
0005

BT_NAM0006.
0006

BT_NAM0007.
0007

```
   ║║║ ║║║║║║ ║║║║║ ║║║║ ║║
            RESET_.
              Reset
```

You may also scan the **Scanner Name** bar code below and scan a number for the 8680i name. For example, if you wanted to name the linked 8680i "312," you would scan the bar code below, scan the **3**, **1**, and **2** bar codes on the Programming Chart, beginning on page 227, then scan **Save**. Scan the **Reset** bar code and wait for the 8680i to relink to the host.

```
   ║║║ ║║║║║║║ ║║║║ ║║║║ ║║║
            BT_NAM.
          Scanner Name
```

Host Acknowledgment

Some applications require that the host terminal (or server) validate incoming bar code data (database look-up) and provide acknowledgment to the scanner whether or not to proceed. In Host ACK Mode, the scanner waits for this acknowledgment after each scan. Visual and audible acknowledgments provide valuable feedback to the scan operator. The Host ACK functionality is controlled via a number of pre-defined escape commands that are sent to the scanner to make it behave in different ways.

Note: *System performance degrades when using Host ACK at rates lower than 9600 baud.*

The following criteria must be met for the Host ACK to work correctly:

•   The cordless system must be configured for Host Port RS232 (terminal ID = 000) or USB COM Emulation (terminal ID = 130).

•   RTS/CTS is defaulted off. You must enable it if the host system requires it.

•   Host ACK must be set to **On** (page 37).

•   A comma must be used as a terminator.

•   The host terminal software must be capable of interpreting the bar code data, make decisions based on the data content, and send out appropriate escape commands to the scanner.

The commands to which the scanner responds are listed on page 38. The **[ESC]** is a **1B** in hex. A typical command string is **y [ESC] x**, where "y" is the application work group number, "[ESC] x" is the escape command, and the comma is the terminator, which is required. (When "y" is not specified, the command is sent to the default Application Work Group 0.)

Example: Commands may be strung together to create custom response sequences. An example of a command string is listed below.

[ESC]4,[ESC]5,[ESC]6,

The above example will make a scanner beep low, then medium, then high.

Example: A good read beep is required for any item on file, but a razz or error tone is required if the item is not on file. In this case,

[ESC]7, is sent from the host to the scanner for an on-file product

[ESC]8,[ESC]8, is sent from the host to the scanner for a not-on-file product

When a bar code is scanned, the scanner enters a timeout period until either the host ACK sequence is received, or the timeout expires (in 10 seconds, by default).

Once Host ACK is enabled, the system works as follows when a bar code is scanned:

- The scanner reads the code and sends data to the base or Access Point to transmit to the host system. No audible or visual indication is emitted until the scanner receives an escape command. The scanner read illumination goes out when there's a successful read.

- Scanner operation is suspended until 1) a valid escape string is received from the host system or 2) the scanner times out.

- Once condition 1 or 2 above has been met, the scanner is ready to scan again, and the process repeats.

A time-out occurs if the scanner does not receive a valid escape command within 10 seconds. A time-out is indicated by an error tone. If a time-out occurs, the operator should check the host system to understand why a response to the scanner was not received.

Host ACK On/Off

Host ACK On

* Host ACK Off

Host ACK Timeout

You can set a timeout for the length of time the scanner waits for a valid escape command when using Host Acknowledgment Mode. Set the length (in seconds) for a timeout by scanning the following bar code, then setting the timeout (from 1–90 seconds) by scanning digits from the Programming Chart, beginning on page 227, then **Save**. *Default = 10.*

Host ACK Timeout

Host ACK Responses

Command	Action
[ESC] a,	Double beeps to indicate a successful menu change was made.
[ESC] b,	Razz or error tone to indicate a menu change was unsuccessful.
[ESC] 1,	The green LED illuminates for 135 milliseconds followed by a pause.
[ESC] 2,	The green LED illuminates for 2 seconds followed by a pause.
[ESC] 3,	The green LED illuminates for 5 seconds followed by a pause.
[ESC] 4,	Emits a beep at a low pitch.
[ESC] 5,	Emits a beep at a medium pitch.
[ESC] 6,	Emits a beep at a high pitch.
[ESC] 7,	Beeps to indicate a successful decode and communication to host.
[ESC] 8,[ESC] 8,	Razz or error tone to indicate a decode/communication to host was unsuccessful.

3

INPUT/OUTPUT SETTINGS

Power Up Beeper

The 8680i can be programmed to beep when it's powered up. Scan the **Off** bar code if you don't want a power up beep. *Default = Power Up Beeper On – Scanner.*

Power Up Beeper Off – Scanner

* Power Up Beeper On – Scanner

Beep on BEL Character

You may wish to force the 8680i to beep upon a command sent from the host. If you scan the **Beep on BEL On** bar code below, the 8680i beeps every time a BEL character is received from the host. *Default = Beep on BEL Off.*

*Beep on BEL Off

Beep on BEL On

Trigger Click

To hear an audible click every time the 8680i trigger is pressed, scan the **Trigger Click On** bar code below. Scan the **Trigger Click Off** code if you don't wish to hear the click. (This feature has no effect on serial or automatic triggering.) *Default = Trigger Click Off.*

BEPTRG0.

*Trigger Click Off

BEPTRG1.

Trigger Click On

Good Read and Error Indicators

Beeper – Good Read

The beeper may be programmed **On** or **Off** in response to a good read. Turning this option off only turns off the beeper response to a good read indication. All error and menu beeps are still audible. *Default = Beeper – Good Read On.*

BEPBEP0.

Beeper – Good Read Off

BEPBEP1.

* Beeper – Good Read On

Beeper Volume – Good Read

The beeper volume codes modify the volume of the beep the 8680i emits on a good read. *Default = High.*

BEPLVL1.

Low

BEPLVL2.

Medium

```
|||  ||| |||| ||  |||||| |
BEPLVL3.
```
* High

```
||| || ||| |||||| ||| ||| |||
BEPLVL0.
```
Off

Beeper Pitch – Good Read

The beeper pitch codes modify the pitch (frequency) of the beep the 8680i emits on a good read. *Default = Medium.*

```
||| || ||| |||| ||| ||| | ||||
BEPFQ11600.
```
Low (1600 Hz)

```
||| || ||| |||| ||| ||| | ||||
BEPFQ12700.
```
*** Medium
(2700 Hz)**

```
||| || ||| |||| ||| ||| | ||||
BEPFQ14200.
```
High (4200 Hz)

Vibrate – Good Read

The 8680i vibrates once when a bar code is successfully read, and twice when a programming bar code is successfully read. When a programming bar code is unsuccessful, the 8680i emits one long vibration (2 times the Vibrate Duration length). Scan **Vibrate – Good Read Off** to keep the 8680i from vibrating. *Default = Vibrate – Good Read On.*

```
||| || ||| |||| ||| ||| | ||||
TFBGRD0.
```
Vibrate– Good Read Off

```
||| || ||| |||| ||| ||| | ||||
TFBGRD1.
```
* Vibrate– Good Read On

Vibrate Duration

If you want to set the length for the good read vibration, scan the bar code below, then set the duration (from 100 – 2,000 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 300 ms.*

TFBDUR.
Vibrate Duration

Beeper Pitch – Error

The beeper pitch codes modify the pitch (frequency) of the sound the 8680i emits when there is a bad read or error. *Default = Razz.*

BEPFQ2250.
* Razz (250 Hz)

BEPFQ23250.
Medium (3250 Hz)

BEPFQ24200.
High (4200 Hz)

Beeper Duration – Good Read

The beeper duration codes modify the length of the beep the 8680i emits on a good read. *Default = Normal.*

BEPBIP0.
* Normal Beep

BEPBIP1.
Short Beep

LED – Good Read

The green LED checkmark can be programmed **On** or **Off** in response to a good read. *Default = On.*

BEPLED1.
* LED – Good Read On

BEPLED0.
LED – Good Read Off

Number of Beeps – Good Read

The number of beeps of a good read can be programmed from 1 – 9. The same number of beeps are applied to the beeper and LED in response to a good read. For example, if you program this option to have five beeps, there will be five beeps and five LED flashes in response to a good read. The beeps and LED flashes are in sync with one another. To change the number of beeps, scan the bar code below and then scan a digit (1-9) bar code and the **Save** bar code from the Programming Chart on page 227. *Default = 1.*

BEPRPT.
Number of Good Read Beeps/LED Flashes

Number of Beeps – Error

The number of beeps and LED flashes emitted by the 8680i for a bad read or error can be programmed from 1 – 9. For example, if you program this option to have five error beeps, there will be five error beeps and five LED flashes in response to an error. To change the number of error beeps, scan the bar code below and then scan a digit (1-9) bar code and the **Save** bar code from the Programming Chart on page 227. *Default = 1.*

BEPERR.
Number of Error Beeps/LED Flashes

Good Read Delay

This sets the minimum amount of time before the 8680i can read another bar code. *Default = 0 ms (No Delay).*

```
DLYGRD0.
```
* No Delay

```
DLYGRD500.
```
Short Delay (500 ms)

```
DLYGRD1000.
```
Medium Delay (1,000 ms)

```
DLYGRD1500.
```
Long Delay (1,500 ms)

User-Specified Good Read Delay

If you want to set your own length for the good read delay, scan the bar code below, then set the delay (from 0 - 30,000 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227.

```
DLYGRD.
```
User-Specified Good Read Delay

Manual Trigger Modes

When in manual trigger mode, the 8680i scans until a bar code is read, or until the trigger is released. Two modes are available, Normal and Enhanced. **Normal** mode offers good scan speed and the longest working ranges (depth of field). **Enhanced** mode gives you the highest possible scan speed but slightly less range than Normal mode. Enhanced mode is best used when you require a very fast scan speed and don't require a long working range. *Default = Manual Trigger-Normal.*

```
PAPHHF.
```
* Manual Trigger - Normal

Serial Trigger Mode

You can activate the 8680i either by pressing the trigger, or using a serial trigger command (see Trigger Commands on page 178). You must be in a serial interface mode in order to use serial triggering. Refer to RS232 Serial Port (page 3-38) or USB Serial (page 3-41) for further information. When in serial mode, the 8680i scans until a bar code has been read or until the deactivate command is sent. The 8680i can also be set to turn itself off after a specified time has elapsed (see Read Time-Out, which follows).

Read Time-Out

Use this selection to set a time-out (in milliseconds) of the 8680i's trigger when using serial commands to trigger the 8680i. Once the 8680i has timed out, you can activate the 8680i either by pressing the trigger or using a serial trigger command. After scanning the **Read Time-Out** bar code, set the time-out duration (from 0-300,000 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 30,000 ms.*

||| ||| ||| || |||| ||| ||||| ||||
TRGSTO.
Read Time-Out

Object Detection Mode

Object Detection Mode uses an infrared (IR) beam to detect when an object is in the scanner's field of view. When an object is detected, the scanner attempts to scan the bar code. Scan the **Short Range** code for a target that's approximately 6 inches (16cm) away, or the **Long Range** code for a target that's approximately 13 inches (32cm) away.

|||| ||| ||| || |||| ||| || |||| ||||| ||||
TRGMOD9;AOSRNG2.
Object Detection – Short Range

|||| ||| ||| || |||| ||| || |||| ||||| ||||
TRGMOD9;AOSRNG1.
Object Detection – Long Range

Object Detection Trigger

When in Object Detection Mode, you can use the trigger to scan bar codes as well, but you may not want to allow trigger use when in this mode. Program either **No Trigger** or **Trigger Allowed** by scanning one of the codes below. *Default = Trigger Allowed.*

TRGITG1.

No Trigger

TRGITG0.

* Trigger Allowed

Poor Quality Codes

Poor Quality 1D Codes

This setting improves the 8680i's ability to read damaged or badly printed linear bar codes. When **Poor Quality 1D Reading On** is scanned, poor quality linear bar code reading is improved, but the 8680i's snappiness is decreased, making it less aggressive when reading good quality bar codes. This setting does not affect 2D bar code reading. *Default = Poor Quality 1D Reading Off.*

DECLDI1.

Poor Quality 1D Reading On

DECLDI0.

* Poor Quality 1D Reading Off

Poor Quality PDF Codes

This setting improves the 8680i's ability to read damaged or badly printed PDF codes by combining information from multiple images. When **Poor Quality PDF On** is scanned, poor quality PDF code reading is improved, but the 8680i's snappi–

ness is decreased, making it less aggressive when reading good quality bar codes. This setting does not affect 1D bar code reading. *Default = Poor Quality PDF Reading Off.*

PDFXPR1.

Poor Quality PDF Reading On

PDFXPR0.

* Poor Quality PDF Reading Off

Illumination Lights

If you want the illumination lights on while reading a bar code, scan the **Lights On** bar code, below. However, if you want to turn just the lights off, scan the **Lights Off** bar code. *Default = Lights On.*

Note: *This setting does not affect the aimer light. The aiming light can be set using Aimer Mode (page 48).*

SCNLED1.
* Lights On

SCNLED0.
Lights Off

Aimer Delay

The aimer delay allows a delay time for the operator to aim the 8680i before the image is taken. Use these codes to set the time between when the trigger is pressed and when the image is taken. During the delay time, the aiming light appears, but the LEDs won't turn on until the delay time is over. *Default = Off.*

SCNDLY200.
200 milliseconds

SCNDLY400.
400 milliseconds

* Off *(no delay)*

User-Specified Aimer Delay

If you want to set your own length for the duration of the delay, scan the bar code below, then set the time-out (from 0 - 4,000 ms) by scanning digits, then the **Save** bar code from the Programming Chart on page 227.

Delay Duration

Aimer Mode

This feature allows you to turn the aimer on and off. When the Interlaced bar code is scanned, the aimer is interlaced with the illumination LEDs. *Default = Interlaced*

Off

* Interlaced

Centering

Use Centering to narrow the 8680i's field of view to make sure that it reads only those bar codes you intend to read. For instance, if multiple codes are placed closely together, centering insures that only the desired codes are read. (Centering can be used in conjunction with Aimer Delay, page 47, for the most error-free operation in applications where multiple codes are spaced closely together. Using the Aimer Delay and Centering features, the 8680i can emulate the operation of older systems, such as linear laser bar code scanners.)

Single Code Centering

Scan **Single Code Centering** to target the bar code closest to the center of the image. Singling out a bar code in this manner increases scanning accuracy when there are multiple bar codes close together.

Single Code Centering

Custom Centering Settings

Use the following settings to customize your centering window. If a bar code is not touched by a predefined window, it will not be decoded or output by the 8680i. If centering is turned on by scanning **Centering On**, the 8680i only reads codes that pass through the centering window you specify using the **Top of Centering Window**, **Bottom of Centering Window**, **Left**, and **Right of Centering Window** bar codes.

In the example below, the white box is the centering window. The centering window has been set to 20% left, 30% right, 8% top, and 25% bottom. Since Bar Code 1 passes through the centering window, it will be read. Bar Code 2 does not pass through the centering window, so it will not be read.
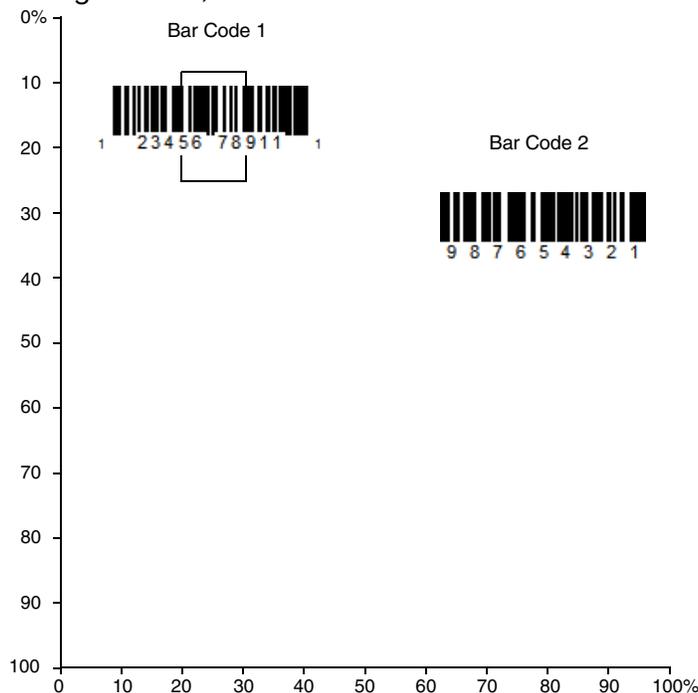
Note: *A bar code needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.*

Scan **Centering On**, then scan one of the following bar codes to change the top, bottom, left, or right of the centering window. Then scan the percent you want to shift the centering window by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default Centering = 40% for Top and Left, 60% for Bottom and Right.*

DECWIN1.
Centering On

DECWIN0.
* Centering Off

DECTOP.
Top of Centering Window

DECBOT.
Bottom of Centering Window

DECLFT.
Left of Centering Window

DECRGT.
Right of Centering Window

Preferred Symbology

The 8680i can be programmed to specify one symbology as a higher priority over other symbologies in situations where both bar code symbologies appear on the same label, but the lower priority symbology cannot be disabled.

For example, you may be using the 8680i in a retail setting to read U.P.C. symbols, but have occasional need to read a code on a drivers license. Since some licenses have a Code 39 symbol as well as the PDF417 symbol, you can use Preferred Symbology to specify that the PDF417 symbol be read instead of the Code 39.

Preferred Symbology classifies each symbology as high priority, low priority, or as an unspecified type. When a low priority symbology is presented, the 8680i ignores it for a set period of time (see Preferred Symbology Time-out on page 52) while it searches for the high priority symbology. If a high priority symbology is located during this period, then that data is read immediately.

If the time-out period expires before a high priority symbology is read, the 8680i reads any bar code in its view (low priority or unspecified). If there is no bar code in the 8680i's view after the time-out period expires, then no data is reported.

Note: *A low priority symbol must be centered on the aiming pattern to be read.*

Scan a bar code below to enable or disable Preferred Symbology. *Default = Preferred Symbology Off.*

PRFENA1.

Preferred Symbology On

PRFENA0.

* Preferred Symbology Off

High Priority Symbology

To specify the high priority symbology, scan the **High Priority Symbology** bar code below. On the Symbology Charts on page 213, find the symbology you want to set as high priority. Locate the hex value for that symbology and scan the 2 digit hex value by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = None*

PRFCOD.

High Priority Symbology

Low Priority Symbology

To specify the low priority symbology, scan the **Low Priority Symbology** bar code below. On the Symbology Charts on page 213, find the symbology you want to set as low priority. Locate the hex value for that symbology and scan the 2 digit hex value from the Programming Chart on page 227.

If you want to set additional low priority symbologies, scan **FF**, then scan the 2 digit hex value from the Programming Chart for the next symbology. You can program up to 5 low priority symbologies. Scan **Save** to save your selection. *Default = None.*

PRFBLK.

Low Priority Symbology

Preferred Symbology Time-out

Once you have enabled Preferred Symbology and entered the high and low priority symbologies, you must set the time-out period. This is the period of time the 8680i searches for a high priority bar code after a low priority bar code has been encountered. Scan the bar code below, then set the delay (from 1-3,000 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500 ms.*

Preferred Symbology Time-out

Preferred Symbology Default

Scan the bar code below to set all Preferred Symbology entries to their default values.

Preferred Symbology Default

Output Sequence Overview

Output Sequence Editor

This programming selection allows you to program the 8680i to output data (when scanning more than one symbol) in whatever order your application requires, regardless of the order in which the bar codes are scanned. You can define up to 15 bar codes in an output sequence.

Note: *To make Output Sequence Editor selections, you'll need to know the code I.D., code length, and character match(es) your application requires. Use the alphanumeric symbols in the Programming Chart (page 227) to enter these options. You must hold the trigger while reading each bar code in the sequence.*

To Add an Output Sequence

An output sequence is created using a string of serial commands that is sent to the 8680i. This string is most easily sent to the 8680i using the EZConfig software tool (see EZConfig-Scanning Introduction on page 173). You can also accomplish this by scanning alphanumeric bar codes (see the Programming Chart, beginning on page 227).

1. If you are using bar codes to create your output sequence, scan the **Enter Sequence** symbol (see Require Output Sequence, page 58).

2. **Code I.D.**
On the Symbology Charts on page 213, find the symbology to which you want to apply the output sequence format. Locate the hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 227.

3. **Length**
Specify what length (up to 9999 characters) of data output is acceptable for this symbology. Make a note of the length. If you are using bar codes to create your output sequence, scan the four digit data length from the Programming Chart, beginning on page 227. (Note: 50 characters is entered as **0050**. 9999 is a universal number, indicating all lengths.) When calculating the length, you must count any programmed prefixes, suffixes, or formatted characters as part of the length (unless using 9999).

4. **Character Match Sequences**
On the ASCII Conversion Chart (Code Page 1252), page 216, find the hex value that represents the character(s) you want to match. Make a note of the hex value for the character(s). If you are using bar codes to create your output sequence, use the Programming Chart (page 227) to read the alphanumeric combination that represents the ASCII characters. (99 is the Universal number, indicating all characters.)

5. **End Output Sequence Editor**
Scan **F F** to enter an Output Sequence for an additional symbology, or **Save** to save your entries.

Other Programming Selections

If you are creating an output sequence using bar codes, scan **Discard** (page 228) to exit without saving any output sequence changes.

Output Sequence Example

SEQBLK   Sequence editor start command.

SEQPRE   Add prefix to complete output sequences.

SEQSUF   Add suffix to complete output sequences.

SEQSEP   Add separators to complete output sequences.

SEQTTS1   Transmit partial sequence.

SEQIPR   Add prefix to partial output sequences.

SEQISU   Add suffix to partial output sequences.

SEQISE   Add separators to partial output sequences.

TRGSTO   Timeout for partial output sequences.

FF   Termination string.

Examples outlining how to use these commands are shown below.

Output Sequence Example 1 – Three Symbologies

In this example, you are scanning PDF417, Code 128, and Code 39 bar codes, but you want the 8680i to output Code 39 first, Code 128 second, and PDF417 third.

Set up the sequence editor with the following command line:

SEQBLK	sequence editor start command
62	code identifier for Code 39
9999	code length that must match for Code 39, 9999 = all lengths
43	start character match for Code 39, 43h = "C"
FF	termination string for first code
6A	code identifier for Code 128
9999	code length that must match for Code 128, 9999 = all lengths
54	start character match for Code 128, 54h = "T"
FF	termination string for first code
72	code identifier for PDF417
9999	code length that must match for PDF417, 9999 = all lengths
4D	start character match for PDF417, 4Dh = "M"
FF	termination string for third code

The whole command line would look like this:

SEQBLK62999943FF6A999954FF7299994DFF

The data is output as:

CODE39SMPLTSTMSGCODE128MSGPDF417

See the next example to further refine this output.

Output Sequence Example 2 – Three Symbologies with <> Separators

In this example, you are scanning the same three bar codes, but you want <> brack‐
ets and a carriage return and line feed to separate your output.

MSGPDF417

TSTMSGCODE128

CODE39SMPL

The sequence editor would use the same command line as shown in Output
Sequence Example (page 53):

SEQBLK	sequence editor start command
62	code identifier for Code 39
9999	code length that must match for Code 39, 9999 = all lengths
43	start character match for Code 39, 43h = "C"
FF	termination string for first code
6A	code identifier for Code 128
9999	code length that must match for Code 128, 9999 = all lengths
54	start character match for Code 128, 54h = "T"
FF	termination string for first code
72	code identifier for PDF417
9999	code length that must match for PDF417, 9999 = all lengths
4D	start character match for PDF417, 4Dh = "M"
FF	termination string for third code

But you would add your <> separators for each sequence:

SEQSEP99	separator for each sequence, 99 = all symbologies
3C	left bracket (<)
3E	right bracket (>)

And add the carriage return and line feed as a suffix:

SEQSUF99	separator for suffixes, 99 = all symbologies
0D	carriage return
0A	line feed

The whole command line would look like this:

SEQBLK62999943FF6A999954FF7299994DFFSEQSEP993C3ESEQSUF990D0A

The data is output as:

<CODE39SMPL>

<TSTMSGCODE128>

<MSGPDF417>

Enter Output Sequence

If you are using bar codes to create your output sequence, scan **Enter Output Sequence** to begin scanning your string.

SEQBLK.

Enter Output Sequence

Partial Sequence

If an output sequence operation is terminated before all your output sequence criteria are met, the bar code data acquired to that point is a "partial sequence." You can define how partial sequences are output using the same types of command strings you used to create output sequences.

Partial Sequence Example - Three Symbologies with <> Separators, but with a Damaged Code

In this example, you are scanning PDF417, Code 128, and Code 39 bar codes, and you want the 8680i to output Code 39 first, Code 128 second, and PDF417 third, in brackets, as shown below, but the Code 39 bar code has been damaged and cannot be output.

MSGPDF417

TSTMSGCODE128

CODE39SMPL

You would use the same command line as shown in Output Sequence Example 2 – Three Symbologies with <> Separators (page 55):

SEQBLK	sequence editor start command
62	code identifier for Code 39
9999	code length that must match for Code 39, 9999 = all lengths
43	start character match for Code 39, 43h = "C"
FF	termination string for first code
6A	code identifier for Code 128
9999	code length that must match for Code 128, 9999 = all lengths
54	start character match for Code 128, 54h = "T"
FF	termination string for first code
72	code identifier for PDF417
9999	code length that must match for PDF417, 9999 = all lengths
4D	start character match for PDF417, 4Dh = "M"
FF	termination string for third code
SEQSEP99	separator for each sequence, 99 = all symbologies
3C	left bracket (<)
3E	right bracket (>)
SEQSUF99	separator for suffixes, 99 = all symbologies
0D	carriage return
0A	line feed

And you would add **>PARTIAL<** as the prefix to note the partial sequence:

SEQTTS1	transmit partial sequence
SEQISU99	add partial sequence prefix, 99 = all symbologies
3E	right bracket (>)
50	P
41	A
52	R
54	T

49	I
41	A
4C	L
3C	left bracket (<)

The whole command line would look like this:

**SEQBLK62999943FF6A999954FF7299994DFFSEQSEP993C3ESEQSUF990D0
ASEQTTS1SEQISU993E5041525449414C3C**

The data is output as:

>PARTIAL<

<TSTMSGCODE128>

<MSGPDF417>

Discard Partial Output Sequence

If you want to discard partial sequences when the output sequence operation is terminated before completion, scan **Discard Partial Sequence**.

SEQTTS0.

* Discard Partial Sequence

Default Output Sequence

Default Sequence programs the 8680i to all universal values. Be certain you want to delete or clear all formats before you read the **Default Sequence** symbol.

SEQDFT.

Default Sequence

Require Output Sequence

When an output sequence is **Required,** all output data must conform to an edited sequence or the 8680i does not transmit the output data to the host device. When it's **On/Not Required**, the 8680i attempts to get the output data to conform to an edited sequence but, if it cannot, the 8680i transmits all output data to the host device as is, or formatted according to the partial sequence output format (see Partial Sequence on page 56).

When the output sequence is **Off**, the bar code data is output to the host as the 8680i decodes it. *Default = Off.*

Note: *This selection is unavailable when the Multiple Symbols Selection is turned on.*

||| ||| || | | || ||| || ||||| || |||
SEQ_EN2.
Required

||| | || ||| | ||| ||| || ||| || ||||
SEQ_EN1.
On/Not Required

||| ||| || ||| | ||| | || || | || ||||
SEQ_EN0.
*Off

Good Read Tone – Output Sequences

The 8680i may be programmed to either beep or click in response to a good read of each bar code in an output sequence, or to emit a beep or error tone for a partial sequence. *Default = Good Read Click – Each Code in Sequence and Error Tone – Partial Sequence Output.*

||| ||| || ||| | ||| | || ||| | || ||||
BEPSIN0.
**Good Read Beep – Each
Code in Sequence**

||| | || ||| | ||| | ||| || || | || ||||
BEPSIN1.
*** Good Read Click – Each
Code in Sequence**

||| ||| || ||| | ||| || || || | || ||||
BEPISE0.
**Good Read Beep – Partial
Sequence Output**

||| | || ||| | ||| || || ||| | || ||||
BEPISE1.
*** Error Tone – Partial
Sequence Output**

Multiple Symbols

When this programming selection is turned **On**, it allows you to read multiple symbols with a single press of the 8680i's trigger. If you press and hold the trigger, aiming the 8680i at a series of symbols, it reads unique symbols once, beeping and

vibrating for each read. The 8680i attempts to find and decode new symbols as long as the trigger is pressed. When this programming selection is turned Off, the 8680i only reads the symbol closest to the aiming beam. *Default = Off.*

SHOTGN1.
On

SHOTGN0.
* Off

No Read

With No Read turned **On**, the 8680i notifies you if a code cannot be read. If using an EZConfig-Scanning Tool Scan Data Window (see page 173), an "NR" appears when a code cannot be read. When No Read is turned **Off**, the "NR" does not appear. *Default = Off.*

SHWNRD1.
On

SHWNRD0.
* Off

If you want a different notation than "NR," for example, "Error," or "Bad Code," you can edit the output message (see Data Format beginning on page 5-69). The hex code for the No Read symbol is **9C**.

Video Reverse

Video Reverse is used to allow the 8680i to read bar codes that are inverted. The **Video Reverse Off** bar code below is an example of this type of bar code. Scan **Video Reverse Only** to read *only* inverted bar codes. Scan **Video Reverse and Standard Bar Codes** to read both types of codes.

Note: *After scanning **Video Reverse Only**, menu bar codes cannot be read. You must scan **Video Reverse Off** or **Video Reverse and Standard Bar Codes** in order to read menu bar codes.*

Note: *Images downloaded from the unit are not reversed. This is a setting for decoding only.*

||||| |||| ||| ||||| |||||| ||||
VIDREV1.

Video Reverse Only

||||| |||| ||| ||||| |||||| ||||
VIDREV2.

**Video Reverse and Standard
Bar Codes**

||||| |||| ||| ||||| |||||| ||||
VIDREV0.

* Video Reverse Off

Working Orientation

Some bar codes are direction-sensitive. For example, KIX codes and OCR can mis-read when scanned sideways or upside down. Use the working orientation settings if your direction-sensitive codes are not usually presented upright to the 8680i.
Default = Upright.

Upright:

Vertical, Top to Bottom:
(Rotate CW 90°)
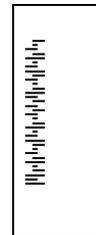
Upside Down:

Vertical, Bottom to Top:
(Rotate CCW 90°)

||| | ||| |||| || ||||| ||||| ||||
ROTATN0.

* Upright

||| ||| || |||| ||||| || ||||
ROTATN1.
Vertical, Bottom to Top

||| ||| || |||| ||||| || ||||
ROTATN2.
Upside Down

||| ||| || |||| ||||| || ||||
ROTATN3.
Vertical, Top to Bottom

DATA EDIT

Prefix/Suffix Overview

When a bar code is scanned, additional information is sent to the host computer along with the bar code data. This group of bar code data and additional, user-defined data is called a "message string." The selections in this section are used to build the user-defined data into the message string.

Prefix and Suffix characters are data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. The following illustration shows the breakdown of a message string:

Prefix	Scanned Data	Suffix
1-11 alpha numeric & control characters	variable length	1-11 alpha numeric & control characters
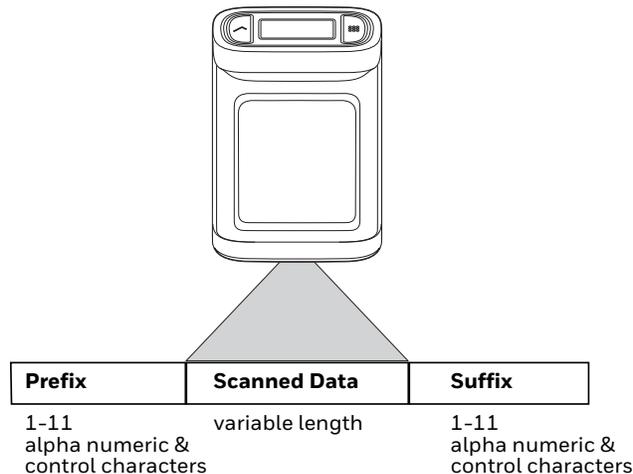
Points to Keep In Mind

- It is not necessary to build a message string. The selections in this chapter are only used if you wish to alter the default settings. *Default prefix = None. Default suffix = None.*

- A prefix or suffix may be added or cleared from one symbology or all symbologies.

- You can add any prefix or suffix from the ASCII Conversion Chart (Code Page 1252), beginning on page 216, plus Code I.D. and AIM I.D.

- You can string together several entries for several symbologies at one time.

- Enter prefixes and suffixes in the order in which you want them to appear on the output.

- When setting up for specific symbologies (as opposed to all symbologies), the specific symbology ID value counts as an added prefix or suffix character.

- The maximum size of a prefix or suffix configuration is 200 characters, which includes header information.

Add a Prefix or Suffix:

Step 1. Scan the **Add Prefix** or **Add Suffix** symbol (page 65).

Step 2. Determine the 2 digit Hex value from the Symbology Chart (included in the Symbology Charts, beginning on page 213) for the symbology to which you want to apply the prefix or suffix. For example, for Code 128, Code ID is "j" and Hex ID is "6A".

Step 3. Scan the 2 hex by scanning digits from the Programming Chart on page 227, or scan **9**, **9** for all symbologies.

To add the Code I.D., scan **5**, **C**, **8**, **0**.
To add AIM I.D., scan **5**, **C**, **8**, **1**.
To add the serial number, scan **5, C, 8, 8**.
To add a backslash (\), scan **5**, **C**, **5**, **C**.

Note: *To add a backslash (\), you must scan 5C twice – once to create the leading backslash and then to create the backslash itself.*

Step 4. Repeat Steps 2 and 3 for every prefix or suffix character.

Step 5. Scan **Save** to exit and save, or scan **Discard** to exit without saving.

Repeat the steps above to add a prefix or suffix for another symbology.

Example: Add a Tab Suffix to All Symbologies

Step 1. Scan **Add Suffix**.

Step 2. Scan **9**, **9** from the Programming Chart, beginning on page 227 to apply this suffix to all symbologies.

Step 3. Scan **0**, **9** from the Programming Chart, beginning on page 227. This corresponds with the hex value for a horizontal tab, shown in the ASCII Conversion Chart (Code Page 1252), beginning on page 216.

Step 4. Scan **Save** to exit and save, or scan **Discard** to exit without saving.

Clear One or All Prefixes or Suffixes

You can clear a single prefix or suffix, or clear all prefixes/suffixes for a symbology. If you have been entering prefixes and suffixes for single symbologies, you can use **Clear One Prefix (Suffix)** to delete a specific character from a symbology. When you **Clear All Prefixes (Suffixes)**, all the prefixes or suffixes for a symbology are deleted.

Step 1.   Scan the **Clear One Prefix** or **Clear One Suffix** symbol.

Step 2.   Determine the 2 digit hex value from the Symbology Chart (included in the Symbology Charts, beginning on page 213) for the symbology from which you want to clear the prefix or suffix.

Step 3.   Scan the 2 digit hex value from the Programming Chart, beginning on page 227, or scan **9**, **9** for all symbologies.

Your change is automatically saved.

Add a Carriage Return Suffix to All Symbologies

Scan the following bar code if you wish to add a carriage return suffix to all symbol-ogies at once. This action first clears all current suffixes, then programs a carriage return suffix for all symbologies.

VSUFCR.
Add CR Suffix
All Symbologies

Prefix Selections

PREBK2.
Add Prefix

PRECL2.
Clear One Prefix

PRECA2.
Clear All Prefixes

Suffix Selections

||| ||| |||| | ||| || |||| ||| |||| ||
SUFBK2.
Add Suffix

||| ||| | || |||| | ||| ||| ||| |||
SUFCL2.
Clear One Suffix

||| ||| |||| | || |||| | ||| |||| ||
SUFCA2.
Clear All Suffixes

Function Code Transmit

By default, all ASCII control characters are transmitted with bar code data. These non-printable characters are translated into predefined key strokes, or CTRL+X functions (see ASCII Conversion Chart (Code Page 1252), beginning on page 216). If these key strokes interfere with your host's software application, scan **Disable** to keep these ASCII control characters from being transmitted. *Default = Enable.*

||| ||| |||| | ||| || |||| ||| |||| ||
RMVFNC0.
* Enable

||| ||| | || |||| | ||| || |||| |||
RMVFNC1.
Disable

Note: *You can also use a custom data format (see Data Format, beginning on page 69) to translate these characters into a more meaningful output.*

Intercharacter, Interfunction, and Intermessage Delays

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, increasing data integrity.

Intercharacter Delay

An intercharacter delay of up to 5000 milliseconds (in 5ms increments) may be placed between the transmission of each character of scanned data. Scan the **Intercharacter Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 227.

Prefix	Scanned Data	Suffix

1 2 3 4 5

Intercharacter Delay

DLYCHR.

Intercharacter Delay
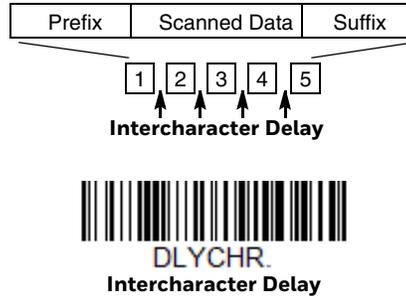
To remove this delay, scan the **Intercharacter Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 227.

Note: *Intercharacter delays are not supported in USB serial emulation.*

User Specified Intercharacter Delay

An intercharacter delay of up to 5000 milliseconds (in 5ms increments) may be placed after the transmission of a particular character of scanned data. Scan the **Delay Length** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 227.

Next, scan the **Character to Trigger Delay** bar code, then the 2-digit hex value for a printable character to trigger the delay (see Lower ASCII Reference Table, page 217.)

DLYCRX.

Delay Length

DLY_XX.

Character to Trigger Delay

To remove this delay, scan the **Delay Length** bar code, and set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 227.

Interfunction Delay

An interfunction delay of up to 5000 milliseconds (in 5ms increments) may be placed between the transmission of each control character in the message string. Scan the **Interfunction Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 227.

Interfunction Delays
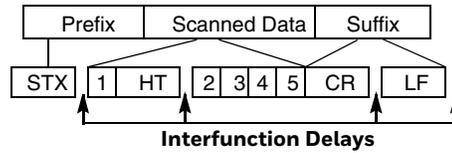
DLYFNC.

Interfunction Delay

To remove this delay, scan the **Interfunction Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 227.

Intermessage Delay

An intermessage delay of up to 5000 milliseconds (in 5ms increments) may be placed between each scan transmission. Scan the **Intermessage Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 227.

1st Scan Transmission   **2nd Scan Transmission**
Intermessage Delay
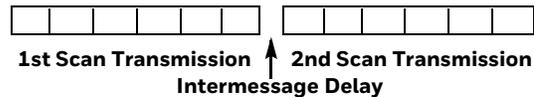
DLYMSG.

Intermessage Delay

To remove this delay, scan the **Intermessage Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 227.

DATA FORMAT

Data Format Editor Introduction

You may use the Data Format Editor to change the 8680i's output. For example, you can use the Data Format Editor to insert characters at certain points in bar code data as it is scanned. The selections in the following pages are used only if you wish to alter the output. *Default Data Format setting = None.*

Normally, when you scan a bar code, it is output automatically. However, when you create a format, you must use a "send" command (see Send Commands on page 72) within the format program to output data.

Multiple formats may be programmed into the 8680i. They are stacked in the order in which they are entered. However, the following list presents the order in which formats are applied:

1. Specific Terminal ID, Actual Code ID, Actual Length
2. Specific Terminal ID, Actual Code ID, Universal Length
3. Specific Terminal ID, Universal Code ID, Actual Length
4. Specific Terminal ID, Universal Code ID, Universal Length
5. Universal Terminal ID, Actual Code ID, Actual Length
6. Universal Terminal ID, Actual Code ID, Universal Length
7. Universal Terminal ID, Universal Code ID, Actual Length
8. Universal Terminal ID, Universal Code ID, Universal Length

The maximum size of a data format configuration is 2000 bytes, which includes header information.

If a bar code is read that fails the first data format, the next data format, if there is one, will be used on the bar code data. If there is no other data format, the raw data is output.

If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the Default Data Format code below.

DFMDF3.
* Default Data Format

Show Data Format

Scan the bar code below to show current data format settings.

DFMBK3?.
Data Format Settings

Add a Data Format

Step 1.   Scan the **Enter Data Format** symbol (page 71).

Step 2.   Select **Primary/Alternate Format**
Determine if this will be your primary data format, or one of 3 alternate formats. This allows you to save a total of 4 different data formats. To program your primary format, scan **0** from the Programming Chart, beginning on page 227. If you are programming an alternate format, scan **1, 2**, or **3**, depending on which alternate format you are programming. (See "Primary/Alternate Data Formats" on page 87 for further information.)

Step 3.   **Terminal Type**
Refer to Terminal ID Table (page 72) and locate the Terminal ID number for your PC. Scan three numeric bar codes from the Programming Chart, beginning on page 227 to program the 8680i for your terminal ID (you must enter 3 digits). For example, scan **0 0 3** for an AT wedge.

Note: **099** *indicates all terminal types.*

Step 4.   **Code I.D.**
In the Symbology Charts, beginning on page 213, find the symbology to which you want to apply the data format. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 227.

If you wish to create a data format for all symbologies, with the exception of some specific symbologies, refer to B8 (page 85).

Note: **99** *indicates all symbologies.*

Step 5.   **Length**
Specify what length (up to 9999 characters) of data are acceptable for this symbology. Scan the four digit data length from the Programming

Chart, beginning on page 227. For example, 50 characters is entered as **0050**.

Note: ***9999*** *indicates all lengths.*

Step 6. **Editor Commands**
Refer to Data Format Editor Commands (page 72). Scan the symbols that represent the command you want to enter.

Step 7. Scan **Save** to save your data format, or **Discard** to exit without saving your changes.

Enter Data Format

Save

Discard

Other Programming Selections

- **Clear One Data Format**
  This deletes one data format for one symbology. If you are clearing the primary format, scan **0** from the Programming Chart, beginning on page 227. If you are clearing an alternate format, scan **1**, **2**, or **3**, depending on the format you are clearing. Scan the Terminal Type and Code I.D. (see Symbology Charts on page 213), and the bar code data length for the specific data format that you want to delete. All other formats remain unaffected.

- **Clear all Data Formats**
  This clears all data formats.

- **Save**
  Exit and save your data format changes.

- **Discard**
  Exit without saving any data format changes.

Clear One Data Format

Clear All Data Formats

```
||||||||||||||||||||||||||
MNUSAV.
        Save
```

Terminal ID Table

Terminal	Model(s)	Terminal ID
USB	PC keyboard (HID)	124
	Mac Keyboard	125
	PC Keyboard (Japanese)	134
	Serial (COM driver required)	130
	HID POS	131
	USB SurePOS Handheld	128
	USB SurePOS Tabletop	129
Serial	RS232 TTL	000
	RS232 True	000
	RS485 (IBM-HHBCR 1+2, 46xx)	051
Keyboard	PS2 compatibles	003
	AT compatibles	002

Data Format Editor Commands

When working with the Data Format Editor, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions, and to select, replace, and insert data into the final output.

Send Commands

Send all characters

F1 Include in the output message all of the characters from the input message, starting from current cursor position, followed by an insert character. *Syntax = F1xx* where xx stands for the insert character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Send a number of characters

F2 Include in the output message a number of characters followed by an insert character. Start from the current cursor position and continue for "nn" characters or through the last character in the input message, followed by character "xx." *Syntax = F2nnxx* where nn stands for the numeric value (00-99) for the number of characters, and xx stands for the insert character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

F2 Example: Send a number of characters

1234567890ABCDEFGHIJ

Send the first 10 characters from the bar code above, followed by a carriage return. Command string: F2100D

F2 is the "Send a number of characters" command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**

F2 and F1 Example: Split characters into 2 lines

Send the first 10 characters from the bar code above, followed by a carriage return, followed by the rest of the characters.

Command string: **F2100DF10D**

F2 is the "Send a number of characters" command

10 is the number of characters to send for the first line

0D is the hex value for a CR

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
1234567890
ABCDEFGHIJ
<CR>

Send all characters up to a particular character

F3 Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search character "ss," followed by an insert character. The cursor is moved forward to the "ss" character. *Syntax = F3ssxx* where ss stands for the search character's hex value for its ASCII code, and xx stands for the insert character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

F3 Example: Send all characters up to a particular character

1234567890ABCDEFGHIJ

Using the bar code above, send all characters up to but not including "D," followed by a carriage return.

Command string: **F3440D**

F3 is the "Send all characters up to a particular character" command

44 is the hex value for a 'D"

0D is the hex value for a CR

The data is output as:
1234567890ABC
<CR>

Send all characters up to a string

B9 Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search string "s...s." The cursor is moved forward to the beginning of the "s...s" string. *Syntax = B9nnnns...s* where nnnn stands for the length of the string, and s...s stands for the string to be matched. The string is made up of hex values for the characters in the string. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

B9 Example: Send all characters up to a defined string

1234567890ABCDEFGHIJ

Using the bar code above, send all characters up to but not including "AB."

Command string: **B900024142**

B9 is the "Send all characters up to a string" command

0002 is the length of the string (2 characters)

41 is the hex value for A

42 is the hex value for B

The data is output as: **1234567890**

Send all but the last characters

E9 Include in the output message all but the last "nn" characters, starting from the current cursor position. The cursor is moved forward to one position past the last input message character included. *Syntax = E9nn where nn stands for the numeric value (00-99) for the number of characters that will not be sent at the end of the message.*

Insert a character multiple times

F4 Send "xx" character "nn" times in the output message, leaving the cursor in the current position. *Syntax = F4xxnn where xx stands for the insert character's hex value for its ASCII code, and nn is the numeric value (00-99) for the number of times it should be sent.* Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

E9 and F4 Example: Send all but the last characters, followed by 2 tabs

1234567890ABCDEFGHIJ

Send all characters except for the last 8 from the bar code above, followed by 2 tabs.

Command string: **E908F40902**

E9 is the "Send all but the last characters" command

08 is the number of characters at the end to ignore

F4 is the "Insert a character multiple times" command

09 is the hex value for a horizontal tab

02 is the number of times the tab character is sent

The data is output as: **1234567890AB <tab><tab>**

Insert a string

BA Send "ss" string of "nn" length in the output message, leaving the cursor in the current position. *Syntax = BAnnnns...s where nnnn stands for the length of the string, and s...s stands for the string.* The string is made up of hex values for the characters in the string. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

B9 and BA Example: Look for the string "AB" and insert 2 asterisks (**)

1234567890ABCDEFGHIJ

Using the bar code above, send all characters up to but not including "AB." Insert 2 asterisks at that point, and send the rest of the data with a carriage return after.

Command string: **B900024142BA00022A2AF10D**

B9 is the "Send all characters up to a string" command

0002 is the length of the string (2 characters)

41 is the hex value for A

42 is the hex value for B

BA is the "Insert a string" command

0002 is the length of the string to be added (2 characters)

2A is the hex value for an asterisk (*)

2A is the hex value for an asterisk (*)

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
1234567890**ABCDEFGHIJ
<CR>

Insert symbology name

B3 Insert the name of the bar code's symbology in the output message, without moving the cursor. Only symbologies with a Honeywell ID are included (see Symbology Charts on page 213). Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Insert bar code length

B4 Insert the bar code's length in the output message, without moving the cursor. The length is expressed as a numeric string and does not include leading zeroes.

B3 and B4 Example: Insert the symbology name and length

1234567890ABCDEFGHIJ

Send the symbology name and length before the bar code data from the bar code above. Break up these insertions with spaces. End with a carriage return.

Command string: **B3F42001B4F42001F10D**

B3 is the "Insert symbology name" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of times the space character is sent

B4 is the "Insert bar code length" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of times the space character is sent

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
Code128 20 1234567890ABCDEFGHIJ
<CR>

Insert key strokes

B5 Insert a key stroke or combination of key strokes. Key strokes are dependent on your keyboard (see Keyboard Key References on page 223). Any key can be inserted, including arrows and functions. *Syntax = B5xxssnn* where xx is the number of keys pressed (without key modifiers), ss is the key modifier from the table below, and nn is the key number from the Keyboard Key References, page 223.

Key Modifiers	
No Key Modifier	00
Shift Left	01
Shift Right	02
Alt Left	04
Alt Right	08
Control Left	10
Control Right	20

For example, B501021F inserts an "A" on a 104 key, U.S. style keyboard. B5 = the command, 01 = number of keys pressed (without the key modifier), 02 is the key modifier for Shift Right, and 1F is the "a" key. If a lower case "a" were to be inserted, B501001F would be entered.

If there are three keystrokes, the syntax would change from B5xxssnn for one key–stroke to B5xxssnnssnnssnn. An example that would insert "abc" is as follows: B503001F00320030F833.

Note: *Key modifiers can be added together when needed. Example: Control Left+Shift Left = 11.*

Example: Control Left+Shift Left = 17, converted to hexadecimal = 11.

Move Commands

Move the cursor forward a number of characters

F5 Move the cursor ahead "nn" characters from current cursor position.
Syntax = F5nn where nn is the numeric value (00–99) for the number of characters the cursor should be moved ahead.

F5 Example: Move the cursor forward and send the data

1234567890ABCDEFGHIJ

Move the cursor forward 3 characters, then send the rest of the bar code data from the bar code above. End with a carriage return.

Command string: **F503F10D**

F5 is the "Move the cursor forward a number of characters" command

03 is the number of characters to move the cursor

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
4567890ABCDEFGHIJ
<CR>

Move the cursor backward a number of characters

F6 Move the cursor back "nn" characters from current cursor position. *Syntax = F6nn* where nn is the numeric value (00–99) for the number of characters the cursor should be moved back.

Move the cursor to the beginning

F7 Move the cursor to the first character in the input message. *Syntax = F7.*

FE and F7 Example: Manipulate bar codes that begin with a 1

1234567890ABCDEFGHIJ

Search for bar codes that begin with a 1. If a bar code matches, move the cursor back to the beginning of the data and send 6 characters followed by a carriage return. Using the bar code above:

Command string: **FE31F7F2060D**

FE is the "Compare characters" command

31 is the hex value for 1

F7 is the "Move the cursor to the beginning" command

F2 is the "Send a number of characters" command

06 is the number of characters to send

0D is the hex value for a CR

The data is output as:
123456
<CR>

Move the cursor to the end

EA Move the cursor to the last character in the input message. *Syntax = EA.*

Search Commands

Search forward for a character

F8 Search the input message forward for "xx" character from the current cursor position, leaving the cursor pointing to the "xx" character. *Syntax = F8xx* where xx stands for the search character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

F8 Example: Send bar code data that starts after a particular character

1234567890ABCDEFGHIJ

Search for the letter "D" in bar codes and send all the data that follows, including the "D." Using the bar code above:

Command string: **F844F10D**

F8 is the "Search forward for a character" command

44 is the hex value for "D"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
DEFGHIJ
<CR>

Search backward for a character

F9 Search the input message backward for "xx" character from the current cursor position, leaving the cursor pointing to the "xx" character. *Syntax = F9xx* where xx stands for the search character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Search forward for a string

B0 Search forward for "s" string from the current cursor position, leaving cursor pointing to "s" string. *Syntax = B0nnnnS* where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B00004546573 74 searches forward for the first occurrence of the 4 character string "Test." Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

B0 Example: Send bar code data that starts after a string of characters

1234567890ABCDEFGHIJ

Search for the letters "FGH" in bar codes and send all the data that follows, includ‐ing "FGH." Using the bar code above:

Command string: **B00003464748F10D**

B0 is the "Search forward for a string" command

0003 is the string length (3 characters)

46 is the hex value for "F"

47 is the hex value for "G"

48 is the hex value for "H"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
FGHIJ
<CR>

Search backward for a string

B1 Search backward for "s" string from the current cursor position, leaving cursor pointing to "s" string. *Syntax = B1nnnnS* where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B10004454657374 searches backward for the first occurrence of the 4 character string "Test." Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Search forward for a non-matching character

E6 Search the input message forward for the first non-"xx" character from the current cursor position, leaving the cursor pointing to the non-"xx" character. *Syntax = E6xx* where xx stands for the search character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

E6 Example: Remove zeroes at the beginning of bar code data

J00037692

This example shows a bar code that has been zero filled. You may want to ignore the zeroes and send all the data that follows. E6 searches forward for the first char-acter that is not zero, then sends all the data after, followed by a carriage return. Using the bar code above:

Command string: **E630F10D**

E6 is the "Search forward for a non-matching character" command

30 is the hex value for 0

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
37692
<CR>

Search backward for a non-matching character

E7 Search the input message backward for the first non-"xx" character from the current cursor position, leaving the cursor pointing to the non-"xx" character. *Syntax = E7xx* where xx stands for the search character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Miscellaneous Commands

Suppress characters

FB Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands. When the FC command is encountered, the suppress function is terminated. The cursor is not moved by the FB command. *Syntax = FBnnxxyy . .zz where nn is a count of the number of suppressed characters in the list, and xxyy .. zz is the list of characters to be suppressed.*

FB Example: Remove spaces in bar code data

345 678 90

This example shows a bar code that has spaces in the data. You may want to remove the spaces before sending the data. Using the bar code above:

Command string: **FB0120F10D**

FB is the "Suppress characters" command

01 is the number of character types to be suppressed

20 is the hex value for a space

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
34567890
<CR>

Stop suppressing characters

FC Disables suppress filter and clear all suppressed characters. *Syntax = FC.*

Replace characters

E4 Replaces up to 15 characters in the output message, without moving the cursor. Replacement continues until the E5 command is encountered. *Syntax = E4nnxx$_1$xx$_2$yy$_1$yy$_2$...zz$_1$zz$_2$ where nn is the total count of the number of characters in the list (characters to be replaced plus replacement characters); xx$_1$ defines characters to be replaced and xx$_2$ defines replacement characters, continuing through zz$_1$ and zz$_2$.*

E4 Example: Replace zeroes with CRs in bar code data

1234056780ABC

If the bar code has characters that the host application does not want included, you can use the E4 command to replace those characters with something else. In this example, you will replace the zeroes in the bar code above with carriage returns.

Command string: **E402300DF10D**

E4 is the "Replace characters" command

02 is the total count of characters to be replaced, plus the replacement characters (0 is replaced by CR, so total characters = 2)

30 is the hex value for 0

0D is the hex value for a CR (the character that will replace the 0)

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
1234
5678
ABC
<CR>

Stop replacing characters

E5 Terminates character replacement. *Syntax = E5.*

Compare characters

FE Compare the character in the current cursor position to the character "xx." If characters are equal, move the cursor forward one position. *Syntax = FExx* where xx stands for the comparison character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Compare string

B2 Compare the string in the input message to the string "s." If the strings are equal, move the cursor forward past the end of the string. *Syntax = B2nnnnS* where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B2000454657374 compares the string at the current cursor position with the 4 character string "Test." Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 216 for decimal, hex and character codes.

Check for a number

EC Check to make sure there is an ASCII number at the current cursor position. The format is aborted if the character is not numeric.

EC Example: Only output the data if the bar code begins with a number

If you want only data from bar codes that begin with a number, you can use EC to check for the number.

Command string: **ECF10D**

EC is the "Check for a number" command

F1 is the "Send all characters" command

0D is the hex value for a CR

If this bar code is read, the next data format, if there is one, will be used on the data. If there is no other format, the format fails and the raw data is output as AB1234.

If this bar code is read: the data is output as:

**1234AB
<CR>**

Check for non-numeric character

ED Check to make sure there is a non-numeric ASCII character at the current cursor position. The format is aborted if the character is numeric.

ED Example: Only output the data if the bar code begins with a letter

If you want only data from bar codes that begin with a letter, you can use ED to check for the letter.

Command string: **EDF10D**

ED is the "Check for a non-numeric character" command

F1 is the "Send all characters" command

0D is the hex value for a CR

If this bar code is read, the next data format, if there is one, will be used on this data. If there is no other format, the format fails and the raw data is output as 1234AB.

If this bar code is read: ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖ the data is output as:
AB1234

AB1234
<CR>

Insert a delay

EF Inserts a delay of up to 49,995 milliseconds (in multiples of 5), starting from the current cursor position. *Syntax = EFnnnn where nnnn stands for the delay in 5ms increments, up to 9999. This command can only be used with keyboard emulation.a*

Discard Data

B8 Discards types of data. For example, you may want to discard Code 128 bar codes that begin with the letter A. In step 4 (page 70), select 6A (for Code 128), and in step 5, select 9999 (for all lengths). Enter FE41B8 to compare and discard Code 128 bar codes that begin with the letter A. *Syntax = B8.*

Note: *The B8 command must be entered after all other commands.*
The Data Format must be **Required** *(see page 86) in order for the B8 command to work.*
If Data Format is On, but Not Required (page 86), bar code data that meets the B8 format is scanned and output as usual.
Because the data format needs to be **On** *and* **Required** *(page 86) for the B8 command, you must input data formats for all bar codes you wish to discard as well as all bar codes you wish to output.*
Other data format settings impact the B8 command. If Data Format Non-Match Error Tone is On (page 87), the 8680i emits an error tone. If Data format Non-Match Error Tone is Off, the code is disabled for reading and no tone is sounded.

Data Formatter

When Data Formatter is turned Off, the bar code data is output to the host as read, including prefixes and suffixes.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
DFM_EN0.
Data Formatter Off

You may wish to require the data to conform to a data format you have created and saved. The following settings can be applied to your data format:

• **Data Formatter On, Not Required, Keep Prefix/Suffix**
Scanned data is modified according to your data format, and prefixes and suffixes are transmitted.

• **Data Formatter On, Not Required, Drop Prefix/Suffix**
Scanned data is modified according to your data format. If a data format is found for a particular symbol, those prefixes and suffixes are not transmitted. If

a data format is *not* found for that symbol, the prefixes and suffixes *are* transmitted.

- **Data Format Required, Keep Prefix/Suffix**
  Scanned data is modified according to your data format, and prefixes and suffixes are transmitted. Any data that does not match your data format requirements generates an error tone and the data in that bar code is not transmitted. If you wish to process this type of bar code without generating an error tone, see Data Format Non–Match Error Tone.

- **Data Format Required, Drop Prefix/Suffix**
  Scanned data is modified according to your data format. If a data format is found for a particular symbol, those prefixes and suffixes are not transmitted. Any data that does not match your data format requirements generates an error tone. If you wish to process this type of bar code without generating an error tone, see Data Format Non–Match Error Tone.

Choose one of the following options. *Default = Data Formatter On, Not Required, Keep Prefix/Suffix.*

DFM_EN1.
*** Data Formatter On,
Not Required,
Keep Prefix/Suffix**

DFM_EN3.
**Data Formatter On,
Not Required,
Drop Prefix/Suffix**

DFM_EN2.
**Data Format Required,
Keep Prefix/Suffix**

DFM_EN4.
**Data Format Required,
Drop Prefix/Suffix**

Data Format Non–Match Error Tone

When a bar code is encountered that doesn't match your required data format, the 8680i normally generates an error tone. However, you may want to continue scanning bar codes without hearing the error tone. If you scan the **Data Format Non–Match Error Tone Off** bar code, data that doesn't conform to your data format is

not transmitted, and no error tone sounds. If you wish to hear the error tone when a non-matching bar code is found, scan the **Data Format Non-Match Error Tone On** bar code. *Default = Data Format Non-Match Error Tone On.*

* Data Format Non-Match Error Tone On

Data Format Non-Match Error Tone Off

Primary/Alternate Data Formats

You can save up to four data formats, and switch between these formats. Your primary data format is saved under 0. Your other three formats are saved under **1, 2**, and **3**. To set your device to use one of these formats, scan one of the bar codes below.

Primary Data Format

Data Format 1

Data Format 2

Data Format 3

Single Scan Data Format Change

You can also switch between data formats for a single scan. The next bar code is scanned using an alternate data format, then reverts to the format you have selected above (either Primary, 1, 2, or 3).

For example, you may have set your device to the data format you saved as Data Format 3. You can switch to Data Format 1 for a single trigger press by scanning the **Single Scan-Data Format 1** bar code below. The next bar code that is scanned uses Data Format 1, then reverts back to Data Format 3.

VSAF_0.

**Single Scan-Primary
Data Format**

VSAF_1.

Single Scan-Data Format 1

VSAF_2.

Single Scan-Data Format 2

VSAF_3.

Single Scan-Data Format 3

6 SYMBOLOGIES

This programming section contains the following menu selections. Refer to Chapter 9 for settings and defaults.

- All Symbologies
- Aztec Code
- China Post (Hong Kong 2 of 5)
- Chinese Sensible (Han Xin) Code
- Codabar
- Codablock A
- Codablock F
- Code 11
- Code 128
- Code 32 Pharmaceutical (PARAF)
- Code 39
- Code 93
- Data Matrix

- DotCode

- EAN/JAN-13

- EAN/JAN-8
- GS1 Composite Codes
- GS1 DataBar Expanded
- GS1 DataBar Limited

- GS1 DataBar Omnidirectional

- GS1 Emulation
- GS1-128

- Interleaved 2 of 5
- Korea Post
- Label Code
- Matrix 2 of 5
- MaxiCode
- MicroPDF417
- MSI
- NEC 2 of 5
- Postal Codes - 2D
- Postal Codes - Linear
- PDF417
- GS1 DataBar Omnidirectional
- QR Code
- Straight 2 of 5 IATA (two-bar start/stop)
- Straight 2 of 5 Industrial (three-bar start/stop)
- TCIF Linked Code 39 (TLC39)
- Telepen
- Trioptic Code
- UPC-A
- UPC-A/EAN-13 with Extended Coupon Code
- UPC-E0
- UPC-E1

All Symbologies

For best scanning performance, we recommend you only enable the symbologies that you need. Scan **All Symbologies Off** to disable all symbologies, then enable the symbologies you need by scanning the **On** bar code for each symbology.

ALLENA0.

All Symbologies Off

Message Length Description

You are able to set the valid reading length of some of the bar code symbologies. You may wish to set the same value for minimum and maximum length to force the 8680i to read fixed length bar code data. This helps reduce the chances of a mis-read.

Example: Decode only those bar codes with a count of 9-20 characters.
Min. length = 09
Max. length = 20

Example: Decode only those bar codes with a count of 15 characters.
Min. length = 15
Max. length = 15

For a value other than the minimum and maximum message length defaults, scan the bar codes included in the explanation of the symbology, then scan the digit value of the message length and **Save** bar codes from the Programming Chart, beginning on page 227. The minimum and maximum lengths and the defaults are included with the respective symbologies.

Codabar

<Default All Codabar Settings>

CBRDFT.

Codabar On/Off

CBRENA1.

* On

||||||||||||||||||||||||||

CBRENA0.

Off

Codabar Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. *Default = Don't Transmit.*

||||||||||||||||||||||||||

CBRSSX1.

Transmit

||||||||||||||||||||||||||

CBRSSX0.

* Don't Transmit

Codabar Check Character

Codabar check characters are created using different "modulos." You can program the 8680i to read only Codabar bar codes with Modulo 16 check characters. *Default = No Check Character.*

No Check Character indicates that the 8680i reads and transmits bar code data with or without a check character.

When Check Character is set to **Validate and Transmit**, the 8680i only reads Codabar bar codes printed with a check character, and transmits this character at the end of the scanned data.

When Check Character is set to **Validate, but Don't Transmit**, the 8680i only reads Codabar bar codes printed *with* a check character, but does not transmit the check character with the scanned data.

||||||||||||||||||||||||||

CBRCK20.

* No Check Character

||||||||||||||||||||||||||

CBRCK21.

**Validate Modulo 16, but
Don't Transmit**

||||||||||||||||||||||||||

CBRCK22.

**Validate Modulo 16
and Transmit**

Codabar Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the 8680i looks for a Codabar symbol having a "D" start character, adjacent to a symbol having a "D" stop character. In this case the two messages are concatenated into one with the "D" characters omitted.

A 1 2 3 4 D   D 5 6 7 8 A

Select **Require** to prevent the 8680i from decoding a single "D" Codabar symbol without its companion. This selection has no effect on Codabar symbols without Stop/Start D characters.

CBRCCT1.
On

CBRCCT0.
* Off

CBRCCT2.
Require

Codabar Redundancy

If you are encountering errors when reading Codabar bar codes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a bar code is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the bar code. To adjust the redundancy, scan the Codabar Redundancy bar code below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 227. Then scan the **Save** bar code. *Default = 0.*

CBRVOT.
Codabar Redundancy

Codabar Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 2-60. Minimum Default = 4, Maximum Default = 60.

||||||||||||||||||||||||
CBRMIN.
Minimum Message Length

||||||||||||||||||||||||
CBRMAX.
Maximum Message Length

Code 39

< Default All Code 39 Settings >

||||||||||||||||||||||||
C39DFT.

Code 39 On/Off

||||||||||||||||||||||||
C39ENA1.
* On

||||||||||||||||||||||||
C39ENA0.
Off

If you are reading Code 39 bar codes, Codablock A should remain disabled. If you are enabling Codablock A (see Codablock A on page 129), you should disable Code 39.

Code 39 Start / Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. *Default = Don't Transmit.*

||||||||||||||||||||||||
C39SSX1.
Transmit

Code 39 Check Character

No Check Character indicates that the 8680i reads and transmits bar code data with or without a check character.

When Check Character is set to **Validate, but Don't Transmit**, the unit only reads Code 39 bar codes printed with a check character, but does not transmit the check character with the scanned data.

When Check Character is set to **Validate and Transmit**, the 8680i only reads Code 39 bar codes printed with a check character, and transmits this character at the end of the scanned data. *Default = No Check Character.*

‖‖|‖|‖|‖‖|‖‖‖|‖|‖‖‖|‖‖‖|‖
C39CK20.
* No Check Character

‖‖|‖|‖|‖‖‖|‖‖|‖|‖|‖‖‖|‖‖|‖
C39CK21.
Validate, but Don't Transmit

‖‖|‖|‖|‖‖|‖‖‖|‖|‖‖|‖|‖‖|‖
C39CK22.
Validate and Transmit

Code 39 Redundancy

If you are encountering errors when reading Code 39 bar codes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a bar code is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the bar code. To adjust the redundancy, scan the **Code 39 Redundancy** bar code below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 227. Then scan the **Save** bar code. *Default = 0.*

‖‖|‖|‖|‖‖|‖‖|‖|‖‖‖|‖‖‖|‖
C39VOT.
Code 39 Redundancy

Code 39 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 0-48. Minimum Default = 0, Maximum Default = 48.

C39MIN.

Minimum Message Length

C39MAX.

Maximum Message Length

Code 39 Append

This function allows the 8680i to append the data from several Code 39 bar codes together before transmitting them to the host computer. When the 8680i encounters a Code 39 bar code with the append trigger character(s), it buffers Code 39 bar codes until it reads a Code 39 bar code that does not have the append trigger. The data is then transmitted in the order in which the bar codes were read (FIFO). *Default = Off.*

C39APP1.

On

C39APP0.

* Off

Code 32 Pharmaceutical (PARAF)

Code 32 Pharmaceutical is a form of the Code 39 symbology used by Italian pharmacies. This symbology is also known as PARAF.

Note: *Trioptic Code (page 129) must be turned off while scanning Code 32 Pharmaceutical codes.*

C39B321.

On

C39B320.

* Off

Full ASCII

If Full ASCII Code 39 decoding is enabled, certain character pairs within the bar code symbol are interpreted as a single character. For example: $V is decoded as the ASCII character SYN, and /C is decoded as the ASCII character *#*. *Default = Off*.

Full ASCII Table

NUL	%U	DLE	$P	SP	SPACE	0	0	@	%V	P	P	`	%W	p	+P
SOH	$A	DC1	$Q	!	/A	1	1	A	A	Q	Q	a	+A	q	+Q
STX	$B	DC2	$R	"	/B	2	2	B	B	R	R	b	+B	r	+R
ETX	$C	DC3	$S	#	/C	3	3	C	C	S	S	c	+C	s	+S
EOT	$D	DC4	$T	$	/D	4	4	D	D	T	T	d	+D	t	+T
ENQ	$E	NAK	$U	%	/E	5	5	E	E	U	U	e	+E	u	+U
ACK	$F	SYN	$V	&	/F	6	6	F	F	V	V	f	+F	v	+V
BEL	$G	ETB	$W	'	/G	7	7	G	G	W	W	g	+G	w	+W
BS	$H	CAN	$X	(	/H	8	8	H	H	X	X	h	+H	x	+X
HT	$I	EM	$Y	)	/I	9	9	I	I	Y	Y	i	+I	y	+Y
LF	$J	SUB	$Z	*	/J	:	/Z	J	J	Z	Z	j	+J	z	+Z
VT	$K	ESC	%A	+	/K	;	%F	K	K	[	%K	k	+K	{	%P
FF	$L	FS	%B	,	/L	<	%G	L	L	\	%L	l	+L			%Q
CR	$M	GS	%C	-	-	=	%H	M	M	]	%M	m	+M	}	%R
SO	$N	RS	%D	.	.	>	%I	N	N	^	%N	n	+N	~	%S
SI	$O	US	%E	/	/O	?	%J	O	O	_	%O	o	+O	DEL	%T

Character pairs /M and /N decode as a minus sign and period respectively. Character pairs /P through /Y decode as 0 through 9.

Full ASCII On

* Full ASCII Off

Code 39 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

Code 39 Code Page

Interleaved 2 of 5

< Default All Interleaved 2 of 5 Settings >

||||||||||||||||||||||
I25DFT.

Interleaved 2 of 5 On/Off

||||||||||||||||||||||
I25ENA1.
* On

||||||||||||||||||||||
I25ENA0.
Off

Check Digit

No Check Digit indicates that the 8680i reads and transmits bar code data with or without a check digit.

When Check Digit is set to **Validate, but Don't Transmit**, the unit only reads Interleaved 2 of 5 bar codes printed with a check digit, but does not transmit the check digit with the scanned data.

When Check Digit is set to **Validate and Transmit**, the 8680i only reads Interleaved 2 of 5 bar codes printed with a check digit, and transmits this digit at the end of the scanned data. *Default =* **No Check Digit**.

||||||||||||||||||||||
I25CK20.
* No Check Digit

||||||||||||||||||||||
I25CK21.
Validate, but Don't Transmit

||||||||||||||||||||||
I25CK22.
Validate and Transmit

Interleaved 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 6, Maximum Default = 80.

‖|‖‖‖‖‖|‖|‖‖|‖‖|‖
I25MIN.

Minimum Message Length

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
I25MAX.

Maximum Message Length

FEBRABAN Decode

Scan the bar codes below to turn FEBRABAN Boleto decoding on or off. *Default = Off.*

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
I25PAY1.

FEBRABAN Decode On

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
I25PAY0.

*FEBRABAN Decode Off

NEC 2 of 5

< Default All NEC 2 of 5 Settings >

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
N25DFT.

NEC 2 of 5 On/Off

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
N25ENA1.

* On

‖|‖‖‖‖|‖‖|‖‖|‖‖|‖
N25ENA0.

Off

Check Digit

No Check Digit indicates that the 8680i reads and transmits bar code data with or without a check digit.

When Check Digit is set to **Validate, but Don't Transmit**, the unit only reads NEC 2 of 5 bar codes printed with a check digit, but does not transmit the check digit with the scanned data.

When Check Digit is set to **Validate and Transmit**, the 8680i only reads NEC 2 of 5 bar codes printed with a check digit, and transmits this digit at the end of the scanned data. *Default* = **No Check Digit**.

N25CK20.
* No Check Digit

N25CK21.
Validate, but Don't Transmit

N25CK22.
Validate and Transmit

NEC 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 2–80. Minimum Default = 4, Maximum Default = 80.

N25MIN.
Minimum Message Length

N25MAX.
Maximum Message Length

Code 93

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93DFT.

Code 93 On/Off

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93ENA1.
* On

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93ENA0.
Off

Code 93 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93MIN.
Minimum Message Length

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93MAX.
Maximum Message Length

Code 93 Append

This function allows the 8680i to append the data from several Code 93 bar codes together before transmitting them to the host computer. When this function is enabled, the 8680i stores those Code 93 bar codes that start with a space (excluding the start and stop symbols), and does not immediately transmit the data. The 8680i stores the data in the order in which the bar codes are read, deleting the first space from each. The 8680i transmits the appended data when it reads a Code 93 bar code that starts with a character other than a space. *Default = Off.*

‖‖‖‖‖‖‖‖‖‖‖‖‖
C93APP1.
On

```
‖‖‖ ‖‖‖ ‖‖ ‖ ‖‖ ‖‖‖‖ ‖‖ ‖‖
C93APP0.
```
* Off

Code 93 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

```
‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖‖‖ ‖‖ ‖‖‖
C93DCP.
```
Code 93 Code Page

Straight 2 of 5 Industrial (three-bar start/stop)

<Default All Straight 2 of 5 Industrial Settings>

```
‖‖ ‖‖‖‖‖ ‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖
R25DFT.
```

Straight 2 of 5 Industrial On/Off

```
‖‖‖ ‖‖ ‖‖ ‖ ‖ ‖‖‖‖ ‖‖ ‖‖
R25ENA1.
```
On

```
‖ ‖ ‖‖‖‖ ‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖
R25ENA0.
```
* Off

Straight 2 of 5 Industrial Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.

Minimum Message Length

Maximum Message Length

Straight 2 of 5 IATA (two-bar start/stop)

<Default All Straight 2 of 5 IATA Settings>

Straight 2 of 5 IATA On/Off

On

* Off

Straight 2 of 5 IATA Redundancy

If you are encountering errors when reading Straight 2 of 5 IATA bar codes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a bar code is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the bar

code. To adjust the redundancy, scan the Straight 2 of 5 IATA Redundancy bar code below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 227. Then scan the **Save** bar code. *Default = 0.*

**Straight 2 of 5 IATA
Redundancy**

Straight 2 of 5 IATA Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1–48. Minimum Default = 4, Maximum Default = 48.

Minimum Message Length

Maximum Message Length

Matrix 2 of 5

<Default All Matrix 2 of 5 Settings>

Matrix 2 of 5 On/Off

On

* Off

Matrix 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.

Minimum Message Length

Maximum Message Length

Code 11

<Default All Code 11 Settings>

Code 11 On/Off

On

* Off

Check Digits Required

This option sets whether 1 or 2 check digits are required with Code 11 bar codes. *Default = Two Check Digits.*

One Check Digit

* Two Check Digits

Code 11 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.

Minimum Message Length

Maximum Message Length

Code 128

<Default All Code 128 Settings>

Code 128 On/Off

* On

Off

If you are reading Code 128 bar codes, Codablock F should remain disabled. If you are enabling Codablock F (see Codablock F on page 130), you should disable Code 128.

ISBT 128 Concatenation

In 1994 the International Society of Blood Transfusion (ISBT) ratified a standard for communicating critical blood information in a uniform manner. The use of ISBT formats requires a paid license. The ISBT 128 Application Specification describes 1) the critical data elements for labeling blood products, 2) the current recommen-dation to use Code 128 due to its high degree of security and its space-efficient

design, 3) a variation of Code 128 that supports concatenation of neighboring symbols, and 4) the standard layout for bar codes on a blood product label. Use the bar codes below to turn concatenation on or off. *Default =Off.*

ISBENA1.
On

ISBENA0.
* Off

Code 128 Redundancy

If you are encountering errors when reading Code 128 bar codes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a bar code is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the bar code. To adjust the redundancy, scan the Code 128 Redundancy bar code below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 227. Then scan the **Save** bar code. *Default = 0.*

128VOT.
Code 128 Redundancy

Code 128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.

128MIN.
Minimum Message Length

128MAX.
Maximum Message Length

Code 128 Append

This function allows the 8680i to append the data from several Code 128 bar codes together before transmitting them to the host computer. When the 8680i encounters a Code 128 bar code with the append trigger character(s), it buffers Code 128

bar codes until it reads a Code 128 bar code that does not have the append trigger. The data is then transmitted in the order in which the bar codes were read (FIFO). *Default = Off.*

128APP1.
On

128APP0.
* Off

Code 128 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

128DCP.
Code 128 Code Page

GS1-128

<Default All GS1-128 Settings>

GS1DFT.

GS1-128 On/Off

GS1ENA1.
* On

GS1ENA0.
Off

GS1-128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 1, Maximum Default = 80.

GS1MIN.
Minimum Message Length

GS1MAX.
Maximum Message Length

Telepen

<Default All Telepen Settings>

TELDFT.

Telepen On/Off

TELENA1.
On

TELENA0.
* Off

Telepen Output

Using **AIM Telepen Output**, the 8680i reads symbols with start/stop pattern 1 and decodes them as standard full ASCII (start/stop pattern 1). When **Original Telepen Output** is selected, the 8680i reads symbols with start/stop pattern 1 and decodes them as compressed numeric with optional full ASCII (start/stop pattern 2). *Default = AIM Telepen Output.*

TELOLD0.
* AIM Telepen Output

Telepen Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-60. Minimum Default = 1, Maximum Default = 60.

TELMIN.
Minimum Message Length

TELMAX.
Maximum Message Length

UPC-A

<Default All UPC-A Settings>

UPADFT.

UPC-A On/Off

UPBENA1.
* On

UPBENA0.
Off

Note: *To convert UPC-A bar codes to EAN-13, see Convert UPC-A to EAN-13 on page 116.*

UPC-A Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

UPACKX1.
* On

UPACKX0.
Off

UPC-A Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but can be programmed so it is not transmitted (**Off**). *Default = On.*

UPANSX1.
* On

UPANSX0.
Off

UPC-A Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-A data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

UPAAD21.
2 Digit Addenda On

UPAAD20.
* 2 Digit Addenda Off

UPAAD51.
5 Digit Addenda On

UPAAD50.
* 5 Digit Addenda Off

UPC-A Addenda Required

When **Required** is scanned, the 8680i only reads UPC-A bar codes that have addenda. You must then turn on a 2 or 5 digit addenda listed on page 110. *Default = Not Required.*

Required

* Not Required

Addenda Timeout

You can set a time during which the 8680i looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-A Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

Addenda Timeout

UPC-A Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

* On

Off

UPC-A/EAN-13 with Extended Coupon Code

Use the following codes to enable or disable UPC-A and EAN-13 with Extended Coupon Code. When left on the default setting (**Off**), the 8680i treats Coupon Codes and Extended Coupon Codes as single bar codes.

If you scan the **Allow Concatenation** code, when the 8680i sees the coupon code and the extended coupon code in a single scan, it transmits both as one symbologies. Otherwise, it transmits the first coupon code it reads.

If you scan the **Require Concatenation** code, the 8680i must see and read the coupon code and extended coupon code in a single read to transmit the data. No data is output unless both codes are read. *Default = Off.*

CPNENA0.
* Off

CPNENA1.
Allow Concatenation

CPNENA2.
Require Concatenation

Addenda Timeout

You can set a time during which the 8680i looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-A/EAN-13 with Extended Coupon Code. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

DLYADD.
Addenda Timeout

Coupon GS1 DataBar Output

If you scan coupons that have both UPC and GS1 DataBar codes, you may wish to scan and output only the data from the GS1 DataBar code. Scan the **GS1 Output On** code below to scan and output only the GS1 DataBar code data. *Default = GS1 Output Off.*

CPNGS10.
* GS1 Output Off

CPNGS11.
GS1 Output On

UPC-E0

<Default All UPC-E Settings>

UPEDFT.

UPC-E0 On/Off

Most U.P.C. bar codes lead with the 0 number system. To read these codes, use the **UPC-E0 On** selection. If you need to read codes that lead with the 1 number system, use UPC-E1 (page 116). *Default = On.*

UPEEN01.
* UPC-E0 On

UPEEN00.
UPC-E0 Off

UPC-E0 Expand

UPC-E Expand expands the UPC-E code to the 12 digit, UPC-A format. *Default = Off.*

UPEEXP1.
On

||||| |||||| | || ||| ||||| || |||
UPEEXP0.
* Off

UPC-E0 Addenda Required

When **Required** is scanned, the 8680i only reads UPC-E bar codes that have addenda. *Default = Not Required.*

||||| |||||| || ||||||||| || |
UPEARQ1.
Required

||||| |||||| || ||| |||||| || |||
UPEARQ0.
* Not Required

Addenda Timeout

You can set a time during which the 8680i looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-E0 Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0–120 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

||| || |||||| || | |||| ||| ||
DLYADD.
Addenda Timeout

UPC-E0 Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

||||| |||||| || | ||| |||| ||||
UPEADS1.
* On

||||| |||||| || ||| |||| || |||
UPEADS0.
Off

UPC-E0 Check Digit

Check Digit specifies whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

UPECKX1.
* On

UPECKX0.
Off

UPC-E0 Leading Zero

This feature allows the transmission of a leading zero (0) at the beginning of scanned data. To prevent transmission, scan **Off**. *Default = On.*

UPENSX1.
* On

UPENSX0.
Off

UPC-E0 Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-E data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

UPEAD21.
2 Digit Addenda On

UPEAD20.
* 2 Digit Addenda Off

UPEAD51.
5 Digit Addenda On

UPEAD50.
* 5 Digit Addenda Off

UPC-E1

Most U.P.C. bar codes lead with the 0 number system. For these codes, use UPC-E0 (page 113). If you need to read codes that lead with the 1 number system, use the **UPC-E1 On** selection. *Default = Off.*

UPEEN11.
UPC-E1 On

UPEEN10.
* UPC-E1 Off

EAN/JAN-13

<Default All EAN/JAN Settings>

E13DFT.

EAN/JAN-13 On/Off

E13ENA1.
* On

E13ENA0.
Off

Convert UPC-A to EAN-13

When **UPC-A Converted to EAN-13** is selected, UPC-A bar codes are converted to 13 digit EAN-13 codes by adding a zero to the front. When **Do not Convert UPC-A** is selected, UPC-A codes are read as UPC-A.

UPAENA0.
UPC-A Converted to EAN-13

UPAENA1.
* Do not Convert UPC-A

EAN/JAN-13 Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

||||||||||||||||||||||
E13CKX1.
* On

||||||||||||||||||||||
E13CKX0.
Off

EAN/JAN-13 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-13 data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

||||||||||||||||||||||
E13AD21.
2 Digit Addenda On

||||||||||||||||||||||
E13AD20.
* 2 Digit Addenda Off

||||||||||||||||||||||
E13AD51.
5 Digit Addenda On

||||||||||||||||||||||
E13AD50.
* 5 Digit Addenda Off

EAN/JAN-13 Addenda Required

When **Required** is scanned, the 8680i only reads EAN/JAN-13 bar codes that have addenda. *Default = Not Required.*

||||||||||||||||||||||
E13ARQ1.
Required

EAN-13 Beginning with 290 Addenda Required

This setting programs the 8680i to require a 5 digit addenda only on EAN-13 bar codes that begin with "290." The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with "290" must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 5 Digit Addenda: If you have selected Require 5 Digit Addenda, and you want to disable this feature, scan **Don't Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 5 Digit Addenda.

```
ARQ2900.
```
* Don't Require 5 Digit Addenda

```
ARQ2901.
```
Require 5 Digit Addenda

EAN-13 Beginning with 378/379 Addenda Required

This setting programs the 8680i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a "378" or "379." The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a "378" or "379" must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require Addenda: If you have selected Require Addenda, and you want to disable this feature, scan **Don't Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require Addenda.

ARQ3780.
* Don't Require Addenda

ARQ3781.
Require 2 Digit Addenda

ARQ3782.
Require 5 Digit Addenda

ARQ3783.
Require 2 or 5 Digit Addenda

EAN-13 Beginning with 414/419 Addenda Required

This setting programs the 8680i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a "414" or "419." The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a "414" or "419" must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require Addenda: If you have selected Require Addenda, and you want to disable this feature, scan **Don't Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require Addenda.

ARQ4140.
* Don't Require Addenda

ARQ4141.
Require 2 Digit Addenda

ARQ4142.
Require 5 Digit Addenda

EAN-13 Beginning with 434/439 Addenda Required

This setting programs the 8680i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a "434" or "439." The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a "434" or "439" must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require Addenda: If you have selected Require Addenda, and you want to disable this feature, scan **Don't Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require Addenda.

* Don't Require Addenda

Require 2 Digit Addenda

Require 5 Digit Addenda

Require 2 or 5 Digit Addenda

EAN-13 Beginning with 977 Addenda Required

This setting programs the 8680i to require a 2 digit addenda only on EAN-13 bar codes that begin with "977." The following settings can be programmed:

Require 2 Digit Addenda: All EAN-13 bar codes that begin with "977" must have a 2 digit addendum. The EAN-13 bar code with the 2 digit addendum is then transmitted as a single, concatenated bar code. If a 2 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 2 Digit Addenda: If you have selected Require 2 Digit Addenda, and you want to disable this feature, scan **Don't Require 2 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 2 Digit Addenda.

* Don't Require 2 Digit Addenda

Require 2 Digit Addenda

EAN-13 Beginning with 978 Addenda Required

These settings program the 8680i to require a 5 digit addenda only on EAN-13 bar codes that begin with "978." The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with "978" must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 5 Digit Addenda: If you have selected Require 5 Digit Addenda, and you want to disable this feature, scan **Don't Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 5 Digit Addenda.

* Don't Require 5 Digit Addenda

Require 5 Digit Addenda

EAN-13 Beginning with 979 Addenda Required

These settings program the 8680i to require a 5 digit addenda only on EAN-13 bar codes that begin with "979." The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with "979" must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 5 Digit Addenda: If you have selected Require 5 Digit Addenda, and you want to disable this feature, scan **Don't Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 5 Digit Addenda.

* Don't Require 5 Digit Addenda

Require 5 Digit Addenda

Addenda Timeout

You can set a time during which the 8680i looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-E0 Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

Addenda Timeout

EAN/JAN-13 Addenda Separator

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space. *Default = On.*

* On

Off

Note: *If you want to enable or disable EAN13 with Extended Coupon Code, refer to UPC-A/EAN-13 with Extended Coupon Code (page 112).*

ISBN Translate

When **On** is scanned, EAN-13 Bookland symbols are translated into their equivalent ISBN number format. *Default = Off.*

E13ISB1.
On

E13ISB0.
* Off

EAN/JAN-8

<Default All EAN/JAN-8 Settings>

EA8DFT.

EAN/JAN-8 On/Off

EA8ENA1.
* On

EA8ENA0.
Off

EAN/JAN-8 Check Digit

This selection allows you to specify whether or not the check digit should be transmitted at the end of the scanned data. *Default = On.*

EA8CKX1.
* On

EA8CKX0.
Off

EAN/JAN-8 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-8 data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

|||||||||||||||||||||||||
EA8AD21.
2 Digit Addenda On

|||||||||||||||||||||||||
EA8AD20.
* 2 Digit Addenda Off

|||||||||||||||||||||||||
EA8AD51.
5 Digit Addenda On

|||||||||||||||||||||||||
EA8AD50.
* 5 Digit Addenda Off

EAN/JAN-8 Addenda Required

When **Required** is scanned, the 8680i only reads EAN/JAN-8 bar codes that have addenda. *Default = Not Required.*

|||||||||||||||||||||||||
EA8ARQ1.
Required

|||||||||||||||||||||||||
EA8ARQ0.
* Not Required

Addenda Timeout

You can set a time during which the 8680i looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-E0 Addenda Required. Set the length

(in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0–120 milliseconds) by scanning digits, then the **Save** bar code from the Programming Chart on page 227. *Default = 500.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

DLYADD.
Addenda Timeout

EAN/JAN-8 Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

EA8ADS1.
* On

EA8ADS0.
Off

MSI

<Default All MSI Settings>

MSIDFT.

MSI On/Off

MSIENA1.
On

MSIENA0.
* Off

MSI Check Character

Different types of check characters are used with MSI bar codes. You can program the 8680i to read MSI bar codes with Type 10 check characters. *Default = Validate Type 10, but Don't Transmit.*

When Check Character is set to **Validate Type 10/11 and Transmit**, the 8680i only reads MSI bar codes printed with the specified type check character(s), and trans-mits the character(s) at the end of the scanned data.

When Check Character is set to **Validate Type 10/11, but Don't Transmit,** the unit only reads MSI bar codes printed with the specified type check character(s), but does not transmit the check character(s) with the scanned data.

MSICHK0.
* Validate Type 10, but Don't Transmit

MSICHK1.
Validate Type 10 and Transmit

MSICHK2.
Validate 2 Type 10 Characters, but Don't Transmit

MSICHK3.
Validate 2 Type 10 Characters and Transmit

MSICHK4.
Validate Type 11 then Type 10 Character, but Don't Transmit

MSICHK5.
Validate Type 11 then Type 10 Character and Transmit

MSICHK6.
Disable MSI Check Characters

MSI Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 4–48. Minimum Default = 4, Maximum Default = 48.

MSIMIN.

Minimum Message Length

MSIMAX.

Maximum Message Length

GS1 DataBar Omnidirectional

< Default All GS1 DataBar Omnidirectional Settings >

RSSDFT.

GS1 DataBar Omnidirectional On/Off

RSSENA1.

* On

RSSENA0.

Off

GS1 DataBar Limited

< Default All GS1 DataBar Limited Settings >

||| ||||| ||| || ||| ||||| |||
RSLDFT.

GS1 DataBar Limited On/Off

||| ||| || || || ||| ||||| |||
RSLENA1.
* On

||| ||| ||| || ||| || ||| || |||
RSLENA0.
Off

GS1 DataBar Expanded

< Default All GS1 DataBar Expanded Settings >

||| ||| || || ||| ||| ||||| |||
RSEDFT.

GS1 DataBar Expanded On/Off

||| ||| || || || ||| ||||| |||
RSEENA1.
* On

||| ||| ||| || ||| || ||| || |||
RSEENA0.
Off

GS1 DataBar Expanded Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 4–74. Minimum Default = 4, Maximum Default = 74.

||| ||| || || ||| ||| || |||
RSEMIN.
Minimum Message Length

Trioptic Code

Note: If you are going to scan Code 32 Pharmaceutical codes (*page 95*), Trioptic Code must be off.

Trioptic Code is used for labeling magnetic storage media.

||||| |||||| ||| |||| ||||| ||||||
TRIENA1.
On

||||| |||||| ||| |||| ||||| ||||||
TRIENA0.
* Off

Codablock A

<Default All Codablock A Settings>

||||| |||||| ||| |||| ||||| ||||||
CBADFT.

Codablock A On/Off

||||| |||||| ||| |||| ||||| ||||||
CBAENA1.
On

||||| |||||| ||| |||| ||||| ||||||
CBAENA0.
* Off

If you are reading Code 39 bar codes, Codablock A should remain disabled. If you are enabling Codablock A, you should disable Code 39 (see Code 39 on page 93).

Codablock A Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-600. Minimum Default = 1, Maximum Default = 600.

Minimum Message Length

Maximum Message Length

Codablock F

<Default All Codablock F Settings>

Codablock F On/Off

On

* Off

If you are reading Code 128 bar codes, Codablock F should remain disabled. If you are enabling Codablock F, you should disable Code 128 (see Code 128 on page 105).

Codablock F Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-2048. Minimum Default = 1, Maximum Default = 2048.

Minimum Message Length

Label Code

The standard Label Code is used in libraries. *Default = Off.*

LBLENA1.
On

LBLENA0.
*Off

PDF417

< Default All PDF417 Settings >

PDFDFT.

PDF417 On/Off

PDFENA1.
* On

PDFENA0.
Off

PDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-2750. Minimum Default = 1, Maximum Default = 2750.

PDFMIN.
Minimum Message Length

MacroPDF417

MacroPDF417 is an implementation of PDF417 capable of encoding very large amounts of data into multiple PDF417 bar codes. When this selection is enabled, these multiple bar codes are assembled into a single data string. *Default = On.*

PDFMAC1.
* On

PDFMAC0.
Off

MicroPDF417

< Default All MicroPDF417 Settings >

MPDDFT.

MicroPDF417 On/Off

MPDENA1.
On

MPDENA0.
* Off

MicroPDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1–366. Minimum Default = 1, Maximum Default = 366.

Minimum Message Length

Maximum Message Length

GS1 Composite Codes

Linear codes are combined with a unique 2D composite component to form a new class called GS1 Composite symbology. GS1 Composite symbologies allow for the co-existence of symbologies already in use. *Default = Off.*

On

* Off

UPC/EAN Version

Scan the **UPC/EAN Version On** bar code to decode GS1 Composite symbols that have a U.P.C. or an EAN linear component. (This does not affect GS1 Composite symbols with a GS1-128 or GS1 linear component.) *Default = UPC/EAN Version Off.*

UPC/EAN Version On

* UPC/EAN Version Off

Note: *If you scan coupons that have both UPC and GS1 DataBar codes, you may wish to scan and output only the data from the GS1 DataBar code. See Coupon GS1 DataBar Output (page 113) for further information.*

GS1 Composite Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.

COMMIN.

Minimum Message Length

COMMAX.

Maximum Message Length

GS1 Emulation

The 8680i can automatically format the output from any GS1 data carrier to emulate what would be encoded in an equivalent GS1-128 or GS1 DataBar symbol. GS1 data carriers include UPC-A and UPC-E, EAN-13 and EAN-8, ITF-14, GS1-128, and GS1-128 DataBar and GS1 Composites. (Any application that accepts GS1 data can be simplified since it only needs to recognize one data carrier type.)

If **GS1-128 Emulation** is scanned, all retail codes (U.P.C., UPC-E, EAN8, EAN13) are expanded out to 16 digits. If the **AIM ID** is enabled, the value will be the GS1-128 AIM ID,]C1 (see Symbology Charts on page 213).

If **GS1 DataBar Emulation** is scanned, all retail codes (U.P.C., UPC-E, EAN8, EAN13) are expanded out to 16 digits. If the AIM ID is enabled, the value will be the GS1-DataBar AIM ID,]em (see Symbology Charts on page 213).

If **GS1 Code Expansion Off** is scanned, retail code expansion is disabled, and UPC-E expansion is controlled by the UPC-E0 Expand (page 113) setting. If the AIM ID is enabled, the value will be the GS1-128 AIM ID,]C1 (see Symbology Charts on page 213).

If **EAN8 to EAN13 Conversion** is scanned, all EAN8 bar codes are converted to EAN13 format.

Default = GS1 Emulation Off.

EANEMU1.

GS1-128 Emulation

EANEMU2.

GS1 DataBar Emulation

‖‖‖‖‖‖‖‖‖‖‖‖
EANEMU3.
GS1 Code Expansion Off

‖‖‖‖‖‖‖‖‖‖‖‖
EANEMU4.
EAN8 to EAN13 Conversion

‖‖‖‖‖‖‖‖‖‖‖‖
EANEMU0.
* GS1 Emulation Off

TCIF Linked Code 39 (TLC39)

This code is a composite code since it has a Code 39 linear component and a MicroPDF417 stacked code component. All bar code readers are capable of reading the Code 39 linear component. The MicroPDF417 component can only be decoded if TLC39 **On** is selected. The linear component may be decoded as Code 39 even if TLC39 is off. *Default = Off.*

‖‖‖‖‖‖‖‖‖‖‖‖
T39ENA1.
On

‖‖‖‖‖‖‖‖‖‖‖‖
T39ENA0.
* Off

QR Code

< Default All QR Code Settings >

‖‖‖‖‖‖‖‖‖‖‖‖
QRCDFT.

QR Code On/Off

This selection applies to both QR Code and Micro QR Code.

‖‖‖‖‖‖‖‖‖‖‖‖
QRCENA1.
* On

QR Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1–7089. Minimum Default = 1, Maximum Default = 7089.

QRCMIN.
Minimum Message Length

QRCMAX.
Maximum Message Length

QR Code Append

This function allows the 8680i to append the data from several QR Code bar codes together before transmitting them to the host computer. When the 8680i encounters an QR Code bar code with the append trigger character(s), it buffers the number of QR Code bar codes determined by information encoded in those bar codes. Once the proper number of codes is reached, the data is output in the order specified in the bar codes. *Default = On.*

QRCAPP1.
* On

QRCAPP0.
Off

QR Code Page

QR Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646

Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

QRCDCP.
QR Code Page

DotCode

< Default All DotCode Settings >

DOTDFT.

DotCode On/Off

DOTENA1.
On

DOTENA0.
* Off

Poor Quality DotCodes

This setting improves the 8680i's ability to read damaged or badly printed Dot‐Codes. *Default = Poor Quality DotCodes Off.*

DOTEXS1.
Poor Quality DotCodes On

DOTEXS0.
* Poor Quality DotCodes Off

DotCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-2400. Minimum Default = 1, Maximum Default = 2400.

DOTMIN.

Minimum Message Length

DOTMAX.

Maximum Message Length

Data Matrix

< Default All Data Matrix Settings >

IDMDFT.

Data Matrix On/Off

IDMENA1.

* On

IDMENA0.

Off

Low Contrast Data Matrix Enhancements

if you are having trouble reading non-dot peen Data Matrix bar codes, it may be helpful to scan **Low Contrast Data Matrix Enhancements Off**. *Default = Low Contrast Data Matrix Enhancements On.*

DPMENA1.

*** Low Contrast Data Matrix
Enhancements On**

**Low Contrast Data Matrix
Enhancements Off**

Data Matrix Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1–3116. Minimum Default = 1, Maximum Default = 3116.

Minimum Message Length

Maximum Message Length

Data Matrix Code Page

Data Matrix Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

Data Matrix Code Page

MaxiCode

MAXDFT.

MaxiCode On/Off

MAXENA1.
* On

MAXENA0.
Off

MaxiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.

MAXMIN.
Minimum Message Length

MAXMAX.
Maximum Message Length

Aztec Code

||| ||| ||||| ||| ||| |||||| ||||
AZTDFT.

Aztec Code On/Off

||| ||| ||||| ||| ||| ||||| ||||||
AZTENA1.
* On

||| ||| ||| ||| ||||| ||||| |||||||
AZTENA0.
Off

Aztec Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-3832. Minimum Default = 1, Maximum Default = 3832.

||| ||| ||||| ||| ||||| ||| |||||
AZTMIN.
Minimum Message Length

||| ||| ||||| ||| ||||| ||| |||||
AZTMAX.
Maximum Message Length

Aztec Append

This function allows the 8680i to append the data from several Aztec bar codes together before transmitting them to the host computer. When the 8680i encounters an Aztec bar code with the append trigger character(s), it buffers the number of Aztec bar codes determined by information encoded in those bar codes. Once the proper number of codes is reached, the data is output in the order specified in the bar codes. *Default = On.*

||| ||| ||||| ||| |||||||| |||||| ||||
AZTAPP1.
* On

||||||||||||||||||||||
AZTAPP0.
Off

Aztec Code Page

Aztec Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 220), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 227. The data characters should then appear properly.

||||||||||||||||||||||
AZTDCP.
Aztec Code Page

Chinese Sensible (Han Xin) Code

< Default All Han Xin Settings >

||||||||||||||||||||||
HX_DFT.

Han Xin Code On/Off

||||||||||||||||||||||
HX_ENA1.
On

||||||||||||||||||||||
HX_ENA0.
* Off

Han Xin Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 1-7833. Minimum Default = 1, Maximum Default = 7833.

HX_MIN.

Minimum Message Length

HX_MAX.

Maximum Message Length

Postal Codes - 2D

The following lists the possible 2D postal codes, and 2D postal code combinations that are allowed. Only one 2D postal code selection can be active at a time. If you scan a second 2D postal code selection, the first selection is overwritten. *Default = Intelligent Mail Bar Code On.*

POSTAL0.

2D Postal Codes Off

Single 2D Postal Codes:

POSTAL1.

Australian Post On

POSTAL7.

British Post On

POSTAL30.

Canadian Post On

POSTAL10.

* Intelligent Mail Bar Code On

||| ||| ||| || | || ||||| |||| ||||
POSTAL3.
Japanese Post On

||| ||| ||||| || | || |||||| | || |||
POSTAL4.
KIX Post On

||| ||| ||| ||| | ||||| ||| |||| |||
POSTAL5.
Planet Code On
Also see Planet Code
Check Digit, page 146.

||| ||| |||| ||| | ||||| || | |||| |||
POSTAL9.
Postal-4i On

||| ||| ||| ||| | ||||| || | |||| |||
POSTAL6.
Postnet On
Also see Postnet Check
Digit, page 147.

||| ||| |||| || | ||||||| ||| || |||
POSTAL11.
Postnet with B and B' Fields On

||| ||| ||| ||| | ||||| || | |||| |||
POSTAL2.
InfoMail On

Combination 2D Postal Codes:

||| ||| ||| ||| | ||||| || | |||| |||
POSTAL8.
**InfoMail and British
Post On**

||| ||| ||| || | ||||| ||| | ||||| |||
POSTAL20.
**Intelligent Mail Bar Code and
Postnet with B and B' Fields On**

POSTAL14.

**Postnet and
Postal-4i On**

POSTAL16.

**Postnet and
Intelligent Mail Bar Code On**

POSTAL17.

**Postal-4i and
Intelligent Mail Bar Code On**

POSTAL19.

**Postal-4i and
Postnet with B and B' Fields On**

POSTAL12.

**Planet Code and
Postnet On**

POSTAL18.

**Planet Code and
Postnet with B and B' Fields On**

POSTAL13.

**Planet Code and
Postal-4i On**

POSTAL15.

**Planet Code and
Intelligent Mail Bar Code**

POSTAL21.

**Planet Code,
Postnet, and
Postal-4i On**

POSTAL22.

**Planet Code,
Postnet, and
Intelligent Mail Bar Code On**

```
|||||| ||| ||| |||| |||| | |||||| || |||
POSTAL23.
```
Planet Code,
Postal-4i, and
Intelligent Mail Bar Code On

```
||| ||||| | ||| |||||| |||| ||| ||||
POSTAL24.
```
Postnet,
Postal-4i, and
Intelligent Mail Bar Code On

```
|||||| ||| ||| |||| |||| | |||||| || |||
POSTAL25.
```
Planet Code,
Postal-4i, and
Postnet with B and B' Fields On

```
||| ||||| | ||| |||||| |||| ||| ||||
POSTAL26.
```
Planet Code,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On

```
||| ||||| | ||| |||||| |||| ||| ||||
POSTAL27.
```
Postal-4i,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On

```
||| ||||| | ||| |||||| |||| ||| ||||
POSTAL28.
```
Planet Code,
Postal-4i,
Intelligent Mail Bar Code, and
Postnet On

```
||| ||||| | ||| |||||| |||| ||| ||||
POSTAL29.
```
Planet Code,
Postal-4i,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On

Planet Code Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of Planet Code data. *Default = Don't Transmit.*

```
||| ||||| | ||| |||||| |||| ||| ||||
PLNCKX1.
```
Transmit Check Digit

```
||||| || ||| ||||||| ||| ||||| ||||
PLNCKX0.
```
* Don't Transmit Check Digit

Postnet Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of Postnet data. *Default = Don't Transmit.*

```
||||| || ||| || ||||| ||| ||| |||
NETCKX1.
```
Transmit Check Digit

```
||||| || ||| || ||||| ||| ||| |||
NETCKX0.
```
* Don't Transmit Check Digit

Australian Post Interpretation

This option controls what interpretation is applied to customer fields in Australian 4–State symbols.

Bar Output lists the bar patterns in "0123" format.

Numeric N Table causes that field to be interpreted as numeric data using the N Table.

Alphanumeric C Table causes the field to be interpreted as alphanumeric data using the C Table. Refer to the Australian Post Specification Tables.

Combination C and N Tables causes the field to be interpreted using either the C or N Tables.

```
||| || ||||| || ||||| ||| |||| |||
AUSINT0.
```
* Bar Output

```
||| || ||||| || ||||| ||| |||| |||
AUSINT1.
```
Numeric N Table

```
||| || ||||| || ||||| ||| |||| |||
AUSINT2.
```
Alphanumeric C Table

Postal Codes - Linear

The following lists linear postal codes. Any combination of linear postal code selections can be active at a time.

China Post (Hong Kong 2 of 5)

<Default All China Post (Hong Kong 2 of 5) Settings>

```
CPCDFT.
```

China Post (Hong Kong 2 of 5) On/Off

```
CPCENA1.
```
On

```
CPCENA0.
```
* Off

China Post (Hong Kong 2 of 5) Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.

```
CPCMIN.
```
Minimum Message Length

```
CPCMAX.
```
Maximum Message Length

Korea Post

KPCDFT.

Korea Post

KPCENA1.
On

KPCENA0.
* Off

Korea Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 90) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.

KPCMIN.
Minimum Message Length

KPCMAX.
Maximum Message Length

Korea Post Check Digit

This selection allows you to specify whether the check digit should be transmitted or not. *Default = Don't Transmit.*

KPCCHK1.
Transmit Check Digit

KPCCHK0.
* Don't Transmit Check Digit

IMAGING COMMANDS

The 8680i is like a digital camera in the way it captures, manipulates, and transfers images. The following commands allow you to alter the way the 8680i performs these functions.

Single-Use Basis

Imaging Commands with their modifiers send instructions to the 8680i on a single-use basis, and take effect for a single image capture. Once that capture is complete, the 8680i reverts to its imaging default settings. If you want to permanently change a setting, you must use the serial default commands (see Chapter 9). When the serial default command is used, that selection becomes the new, permanent setting for the 8680i.

Command Syntax

Multiple modifiers and commands can be issued within one sequence. If additional modifiers are to be applied to the same command, just add the modifiers to that command. For example, to add 2 modifiers to the Image Snap command, such as setting the Imaging Style to 1P and the Wait for Trigger to 1T, you would enter **IMGSNP1P1T**.

Note: *After processing an image capture command (IMGSNP or IMGBOX), you must follow it with an IMGSHP command if you want to see it on your terminal.*

To add a command to a sequence, each new command is separated with a semicolon. For example, to add the Image Ship command to the above sequence, you would enter IMGSNP1P1T;IMGSHP.

The imaging commands are:

Image Snap - IMGSNP (page 152)

Image Ship - IMGSHP (page 155)

Intelligent Signature Capture - IMGBOX (page 165)

The modifiers for each of these commands follow the command description.

Note: *The images included with each command description are examples only. The results you achieve may be different from those included in this manual. The quality of the output you receive will vary depending on lighting, quality of the initial image/object being captured, and distance of the 8680i from the image/object. To achieve a high quality image, it is recommended that you position your 8680i 4-6" (10.2-15.2 cm) away from the object you are capturing.*

Step 1 – Take a Picture Using IMGSNP

Image Snap – IMGSNP

An image is taken whenever the hardware trigger is pressed, or when the Image Snap (IMGSNP) command is processed.

The image snap command has many different modifiers that can be used to change the look of the image in memory. Any number of modifiers may be appended to the IMGSNP command.

Example: You can use the following command to snap an image, increase the gain, and have the beeper sound once the snap is complete: **IMGSNP2G1B**

IMGSNP Modifiers

P – Imaging Style

This sets the Image Snap style.

0P   **Decoding Style.** This processing allows a few frames to be taken until the exposure parameters are met. The last frame is then available for further use.

1P   **Photo Style** *(default)*. This mimics a simple digital camera, and results in a visually optimized image.

2P   **Manual Style**. This is an advanced style that should only be used by an experienced user. It allows you the most freedom to set up the 8680i, and has no auto-exposure.

B – Beeper

Causes a beep to sound after an image is snapped.

0B   No beep *(default)*

1B   Sounds a beep when the image is captured.

T - Wait for Trigger

Waits for a hardware trigger press before taking the image. This is only available when using Photo Style (1P).

0T   Takes image immediately *(default)*

1T   Waits for a trigger press, then takes the image

L - LED State

Determines if the LEDs should be on or off, and when. Ambient illumination (0L) is preferred for taking pictures of color documents, such as ID cards. LED State is not available when using Decoding Style (0P).

0L   LEDs off *(default)*

1L   LEDs on

E - Exposure

Exposure is used in Manual Style only (2P), and allows you to set the exposure time. This is similar to setting a shutter speed on a camera. The exposure time determines how long the 8680i takes to record an image. On a bright day, exposure times can be very short because plenty of light is available to help record an image. At nighttime, exposure time can increase dramatically due to the near absence of light. Units are 127 microseconds. *(Default = 7874)*

nE   Range: 1 – 7874

Example: **Exposure at 7874E with fluorescent lighting:**   **Exposure at 100E with fluorescent lighting:**
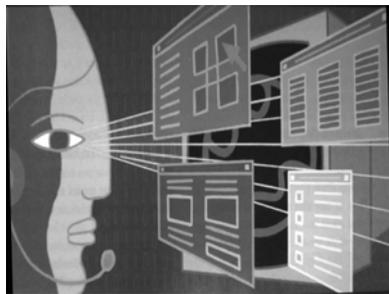
G – Gain

Gain is used in Manual Style only (2P). Like a volume control, the gain modifier boosts the signal and multiplies the pixel value. As you increase the gain, the noise in an image is also amplified.

1G   No gain *(default)*

2G   Medium gain

4G   Heavy gain

8G   Maximum gain

Example: **Gain at 1G:**   **Gain at 4G:**   **Gain at 8G:**

W – Target White Value

Sets the target for the median grayscale value in the captured image. For capturing close-up images of high contrast documents, a lower setting, such as 75, is recommended. Higher settings result in longer exposure times and brighter images, but if the setting is too high, the image may be overexposed. Target White Value is only available when using Photo Style (1P). *(Default = 125)*

*n*W   Range: 0 – 255

Example: **White Value at 75W:**   **White Value at 125W:**   **White Value at 200W:**

D – Delta for Acceptance

This sets the allowable range for the white value setting (see W – Target White Value). Delta is only available when using Photo Style (1P). *(Default = 25)*

*n*D   Range: 0 – 255

U – Update Tries

This sets the maximum number of frames the 8680i should take to reach the D – Delta for Acceptance. Update Tries is only available when using Photo Style (1P). *(Default = 6)*

nU   Range: 0 – 10

% – Target Set Point Percentage

Sets the target point for the light and dark values in the captured image. A setting of 75% means 75% of the pixels are at or below the target white value, and 25% of the pixels are above the target white value. Altering this setting from the default is not recommended under normal circumstances. To alter grayscale values, W – Target White Value should be used. *(Default = 50)*

n%   Range: 1 – 99

Example: **Target Set Point Percentage at 97%:**   **Target Set Point Percentage at 50%:**   **Target Set Point Percentage at 40%:**
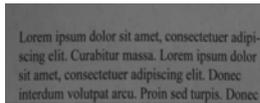
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Curabitur massa. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Donec interdum volutpat arcu. Proin sed turpis. Donec

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Curabitur massa. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Donec interdum volutpat arcu. Proin sed turpis. Donec

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Curabitur massa. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Donec interdum volutpat arcu. Proin sed turpis. Donec

Step 2 – Ship a Picture Using IMGSHP

Image Ship – IMGSHP

An image is taken whenever the trigger is pressed or when the Image Snap (IMGSNP) command is processed. The last image is always stored in memory. You can "ship" the image by using the IMGSHP command.

The image ship commands have many different modifiers that can be used to change the look of the image output. Modifiers affect the image that is transmitted, but do not affect the image in memory. Any number of modifiers may be appended to the IMGSHP command.

Example: You can use the following command to snap and ship a bitmap image with gamma correction and document image filtering: IMGSNP;IMGSHP8F75K26U

IMGSHP Modifiers

A - Infinity Filter

Enhances pictures taken from very long distances (greater than 10 feet or 3m). The Infinity Filter should not be used with IMGSNP Modifiers (page 152).

0A   Infinity filter off *(default)*

1A   Infinity filter on

Example:

Infinity Filter off (0A) from approximately 12 feet (3.66m) away:
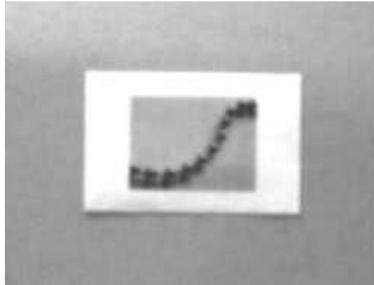
nfinity Filter on (1A) from approximately 12 feet (3.66m) away:
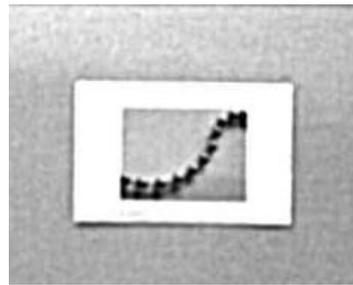
C - Compensation

Flattens the image to account for variations in illumination across the image.

0C   Compensation disabled *(default)*

1C   Compensation enabled

Example:

Compensation at 0C:

Compensation at 1C:

D - Pixel Depth

Indicates the number of bits per pixel in the transmitted image (KIM or BMP format only).

8D   8 bits per pixel, grayscale image *(default)*

1D   1 bit per pixel, black and white image

E – Edge Sharpen

An edge sharpen filter cleans up the edges of an image, making it look cleaner and sharper. While edge sharpening does make the image look cleaner, it also removes some fine detail from the original image. The strength of the edge sharpen filter can be entered from 1 to 24. Entering a **23E** gives the sharpest edges, but also increases noise in the image.

0E Don't sharpen image *(default)*

14E Apply edge sharpen for typical image

*n*e Apply edge sharpen using strength *n* (*n* = 1–24)

Example:

Edge Sharpen at 0E:

Edge Sharpen at 24E:

F - File Format

Indicates the desired format for the image.

0F   KIM format

1F   TIFF binary

2F   TIFF binary group 4, compressed

3F   TIFF grayscale

4F   Uncompressed binary (upper left to lower right, 1 pixel/bit, 0 padded end of line)

5F   Uncompressed grayscale (upper left to lower right, bitmap format)

6F   JPEG image *(default)*

8F   BMP format (lower right to upper left, uncompressed)

10F   TIFF color compressed image

11F   TIFF color uncompressed image

12F   JPEG color image

14F   BMP color format

15F   BMP Uncompressed raw image

H - Histogram Stretch

Increases the contrast of the transmitted image. Not available with some image formats.

0H   No stretch *(default)*

1H   Histogram stretch

Example: **Histogram Stretch at 0H:**   **Histogram Stretch at 1H:**

I - Invert Image

Invert image is used to rotate the image around the X or Y axis.

1ix   Invert around the X axis (flips picture upside down)

1iy   Invert around the Y axis (flips picture left to right)

Example: **Image not inverted:**   **Image with Invert Image set to 1ix:**   **Image with Invert Image set to 1iy:**

IF- Noise Reduction

Used to reduce the salt and pepper noise in an image.

0if   No salt and pepper noise reduction (default)

1if   Salt and pepper noise reduction

Example: **Noise Reduction Off (0if):**   **Noise Reduction On (1if):**

IR – Image Rotate

0ir   Image as snapped (rightside up) (default)

1ir   Rotate image 90 degrees to the right

2ir   Rotate image 180 degrees (upside down)

3ir   Rotate image 90 degrees to the left

Example:

Image Rotate set to 0ir:

Image Rotate set to 2ir:

Image Rotate set to 1ir:

Image Rotate set to 3ir:

J – JPEG Image Quality

Sets the desired quality when the JPEG image format is selected. Higher numbers result in higher quality, but larger files. Smaller numbers result in greater amounts of lossy compression, faster transmission times, lower quality, but smaller files. *(Default = 50)*

*n*J   Image is compressed as much as possible while preserving quality factor of *n* (*n* = 0 – 100)

0J   worst quality (smallest file)

100J   best quality (largest file)

K – Gamma Correction

Gamma measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting, the darker the image. The optimal setting for text images is 50K.

OK   Gamma correction off *(default)*

50K   Apply gamma correction for brightening typical document image

*n*K   Apply gamma correction factor *n* (*n* = 0–1,000)

Example:

Gamma Correction set to 0K:

Gamma Correction set to 50K:

Gamma Correction set to 255K:

L, R, T, B, M – Image Cropping

Ships a window of the image by specifying the left, right, top, and bottom pixel coordinates. Device columns are numbered 0 through 1279, and device rows are numbered 0 through 959.

*n*L   The left edge of the shipped image corresponds to column *n* of the image in memory. Range: 000 – 843. *(Default = 0)*

*n*R   The right edge of the shipped image corresponds to column *n* – 1 of the image in memory. Range: 000 – 843. *(Default = all columns)*

*n*T   The top edge of the shipped image corresponds to row *n* of the image in memory. Range: 000 – 639. *(Default = 0)*

*n*B   The bottom edge of the shipped image corresponds to row *n* – 1 of the image in memory. Range: 000 – 639. *(Default = all rows)*

Example: **Uncropped Image:**   **Image Crop set to 300R:**   **Image Crop set to 300L:**

Image Crop set to 200B: **Image Crop set to 200T:**
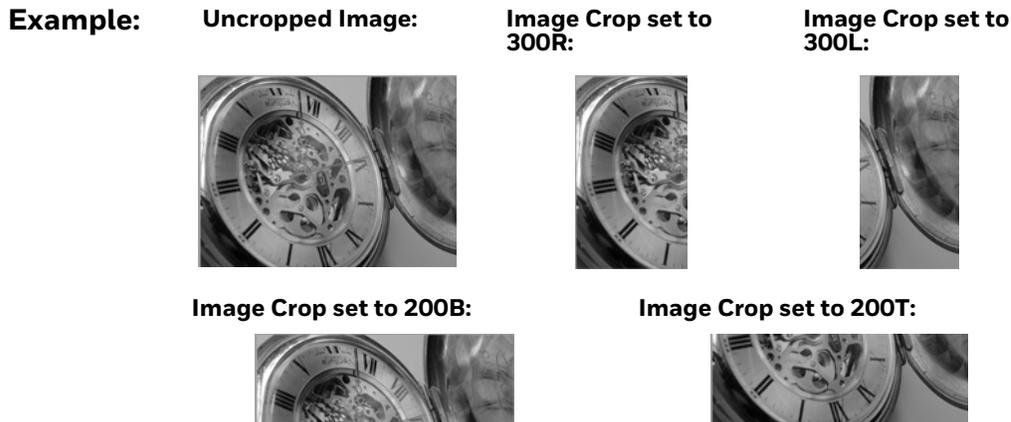
Alternately, specify the number of pixels to cut from the outside margin of the image; thus only the center pixels are transmitted.

*n*M   Margin: cut *n* columns from the left, *n* + 1 columns from the right, *n* rows from the top, and *n* + 1 rows from the bottom of the image. Ship the remaining center pixels. Range: 0 – 238.
(Default = 0, or full image)

Example: **Image Crop set to 238M:**

P – Protocol

Used for shipping an image. Protocol covers two features of the image data being sent to the host. It addresses the protocol used to send the data (Hmodem, which is an Xmodem 1K variant that has additional header information), and the format of the image data that is sent.

0P   None (raw data)

2P   None *(default for USB)*

3P   Hmodem compressed *(default for RS232)*

4P   Hmodem

S – Pixel Ship

Pixel Ship sizes an image in proportion to its original size. It decimates the image by shipping only certain, regularly spaced pixels.

Example: 4S would transmit every fourth pixel from every fourth line.

The smaller number of pixels shipped, the smaller the image, however, after a cer–tain point the image becomes unusable.

> 1S   ship every pixel *(default)*

> 2S   ship every 2nd pixel, both horizontally and vertically

> 3S   ship every 3rd pixel, both horizontally and vertically

Example: **Pixel Ship set to 1S:**   **Pixel Ship set to 2S:**   **Pixel Ship set to 3S:**   **Pixel Ship set to 4S:**
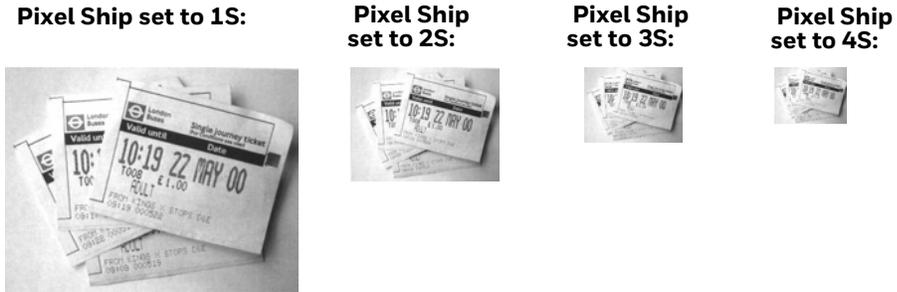
U – Document Image Filter

Allows you to input parameters to sharpen the edges and smooth the area between the edges of text in an image. This filter typically provides better JPEG compression than the standard E – Edge Sharpen command (see page 164). This filter also works well when shipping pure black and white images (1 bit per pixel). The optimal setting is 26U.

> 0U   Document image filter off *(default)*

> 26U   Apply document image filter for typical document image

> *n*U   Apply document image filter using grayscale threshold n. Use lower numbers when the image contrast is lower. 1U will have a similar effect to setting E – Edge Sharpen (page 157) to 22e. Range: 0-255.

Example: **Document Image Filter set to 0U:**   **Document Image Filter set to 26U:**
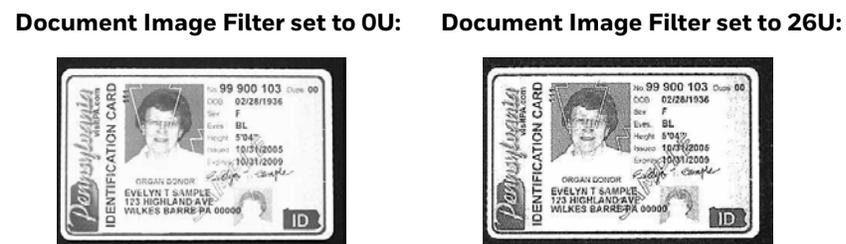
V - Blur Image

Smooths transitions by averaging the pixels next to the hard edges of defined lines and shaded areas in an image.

    0V   Don't blur *(default)*

    1V   Blur

Example:

Blur Image Off (0V):

Blur Image On (1V):

W - Histogram Ship

A histogram gives a quick picture of the tonal range of an image, or key type. A low-key image has detail concentrated in the shadows; a high-key image has detail concentrated in the highlights; and an average-key image has detail concentrated in the midtones. This modifier ships the histogram for an image.

    0W   Don't ship histogram *(default)*

    1W   Ship histogram

Example:

Image used for histogram:

Histogram of image:

Image Size Compatibility

If you have applications that expect an image ship to return exactly 640x480 pixels, scan the Force VGA Resolution bar code. *Default = Native Resolution.*

IMGVGA1.

Force VGA Resolution

Intelligent Signature Capture – IMGBOX

IMGBOX allows you to configure the size and location of a signature capture area relative to its proximity to a bar code. This allows you to tailor a signature capture area to a specific form. In order to use IMGBOX, you need a set form where the signature box location is in a known location relative to a bar code. You can input the overall size of the signature area, as well as specify how far the signature area is from the bar code, vertically and horizontally. You can also set the resolution and file format for the final output of the signature capture image.

Signature Capture Optimize

If you will be using your 8680i to capture signatures frequently, you should optimize it for this purpose. However, the speed of scanning bar codes may be slowed when this mode is enabled. *Default = Off.*

DECBND1.
Optimize On

DECBND0.
* Optimize Off

Below is an example of a signature capture application. In this example, the aiming pattern is centered over the signature capture area and the trigger is pressed. A single beep is emitted, indicating that the 8680i has read a Code 128 bar code and the data has been transferred to the host. An IMGBOX command may now be sent from the host to specify the coordinates of the signature capture area below that code, and indicating that only that area containing the signature should be transferred as an image to the host.

To see this example, align the aiming pattern with the signature area (not with the bar code), then press the trigger.

Send the following IMGBOX command string after the trigger press:

Example: IMGBOX245w37h55y.

Note: *Case is not important in the command string. It is used here only for clarity.*

The following image is captured:
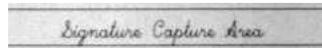
The IMGBOX commands have many different modifiers that can be used to change the size and appearance of the signature image output by the 8680i. Modifiers affect the image that is transmitted, but do not affect the image in memory. Any number of modifiers may be appended to the IMGBOX command.

Note: *The IMGBOX command returns a NAK unless a window size (width and height) are specified. See H – Height of Signature Capture Area (page 168) and W – Width of Signature Capture Area (page 169).*

IMGBOX Modifiers

A – Output Image Width

This option is used to size the image horizontally. If using this option, set the resolution (R) to zero.

Example: **Image Width set to 200A:**
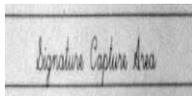
Image Width set to 600A:
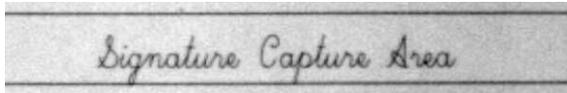
B - Output Image Height

This option is used to size the image vertically. If using this option, set the resolution (R) to zero.

Example:

Image Height set to 50B:
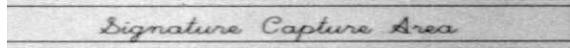
Image Height set to 100B:
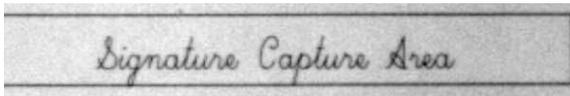
D - Pixel Depth

This indicates the number of bits per pixel in the transmitted image, which defines whether it will be grayscale or black and white.

8D   8 bits per pixel, grayscale image *(default)*

1D   1 bit per pixel, black and white image

F - File Format

This option indicates the type of file format in which to save the image.

0F   KIM format

1F   TIFF binary

2F   TIFF binary group 4, compressed

3F   TIFF grayscale

4F   Uncompressed Binary

5F   Uncompressed grayscale

6F   JPEG image *(default)*

7F   Outlined image

8F   BMP format

H - Height of Signature Capture Area

The height of the signature capture area must be measured in inches divided by .01. In the example, the height of the area to be captured is 3/8 inch, resulting in a value of H = .375/0.01 = 37.5.

*Example: **IMGBOX245w37h55y.***

K - Gamma Correction

Gamma measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting, the darker the image. The optimal setting for text images is 50K.

0K   Gamma correction off *(default)*

50K   Apply gamma correction for brightening typical document image

*n*K   Apply gamma correction factor *n* (*n* = 1-255)

Example: **Gamma Correction set to 0K:**

Gamma Correction set to 50K:

Gamma Correction set to 255K:
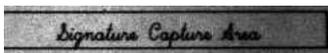
R - Resolution of Signature Capture Area

The resolution is the number of pixels that the 8680i outputs per each minimum bar width. The higher the value for R, the higher the quality of the image, but also the larger the file size. Values begin at 1000. The 8680i automatically inserts a dec-

imal point between the first and second digit. For example, use 2500 to specify a resolution of 2.5. Set to zero when using the A and B modifiers (see A – Output Image Width and B – Output Image Height on page 167).

Example:
Resolution set to 0R:
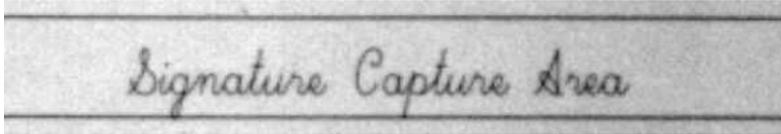
Resolution set to 1000R:

Resolution set to 2000R:
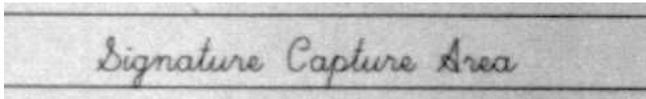
S - Bar Code Aspect Ratio

All dimensions used in IMGBOX are measured as multiples of the minimum element size of the bar code. The bar code aspect ratio allows you to set the ratio of the bar code height to the narrow element width. In the example, the narrow element width is .010 inches and the bar code height is 0.400 inches, resulting in a value of S = 0.4/0.01 = 40.

W - Width of Signature Capture Area

The width of the signature capture area must be measured in inches divided by .01. In the example, the width of the area to be captured is 2.4 inches, resulting in a value of W = 2.4/0.01 = 240. (A value of 245 was used in the example to accommodate a slightly wider image area.)

Example: IMGBOX245w37h55y.

X - Horizontal Bar Code Offset

The horizontal bar code offset allows you to offset the horizontal center of the signature capture area. Positive values move the horizontal center to the right and negative values to the left. Measurements are in multiples of the minimum bar width.

Example:
Horizontal Offset set to 75X:
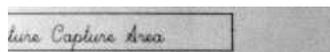
Horizontal Offset set to –75X:
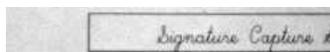
Y - Vertical Bar Code Offset

The vertical bar code offset allows you to offset the vertical center of the signature capture area. Negative numbers indicate that the signature capture is above the bar code, and positive numbers indicate that the area is below the bar code. Measurements are in multiples of the minimum bar width

Vertical Offset set to -7Y: .

Vertical Offset set to 65Y:
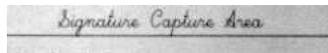
RF Default Imaging Device

The 8680i supports imaging command processing (IMGSHP, IMGSNP, IMGBOX) so that EZConfig-Scanning (see page 173) and other applications are able to perform imaging functions as if they were communicating directly with the 8680i. To accomplish this, the 8680i uses a menu command called RF_DID (RF Default Imaging Device). RF_DID is the name of the 8680i (BT_NAM) that is to receive imaging commands. The default for RF_DID is "*"indicating that imaging commands are to be sent to all associated 8680is. Change this setting to RF_DID*device_name* to ensure that they are sent to a particular 8680i. Refer to Scanner Report on page 25 to generate a report containing the port, 8680i name, and address for each 8680i. Refer to Device Name on page 35 set a unique name for each 8680i.

CHAPTER

8

UTILITIES

Add a Test Code I.D. Prefix to All Symbologies

This selection allows you to turn on transmission of a Code I.D. before the decoded symbology. (See the Symbology Charts, beginning on page 213 for the single character code that identifies each symbology.) This action first clears all current prefixes, then programs a Code I.D. prefix for all symbologies. This is a temporary setting that is removed when the unit is power cycled.

PRECA2,BK2995C80!

Add Code I.D. Prefix to
All Symbologies (Temporary)

Show Software Revision

Scan the bar code below to output the current software revision, unit serial number, and other product information for the 8680i.

REVINF.

Show Software Revision

Test Menu

When you scan the **Test Menu On** code, then scan a programming code in this manual, the 8680i displays the content of a programming code. The programming function still occurs, but in addition, the content of that programming code is output to the terminal.

Note: *This feature should not be used during normal 8680i operation.*

```
||||| ||| ||||| ||||||||| |||||| ||| |||
TSTMNU1.
```
On

```
||| |||| ||| ||| ||||||||| |||| ||||
TSTMNU0.
```
* Off

TotalFreedom

TotalFreedom is an open system architecture that makes it possible for you create applications that reside on your 8680i. Decoding apps and Data Formatting apps can be created using TotalFreedom. For further information about TotalFreedom, go to our website at www.honeywellaidc.com.

Application Plug-Ins (Apps)

Any apps that you are using can be turned off or on by scanning the following bar codes. Apps are stored in groups: Decoding and Formatting. You can enable and disable these groups of apps by scanning that group's **On** or **Off** bar code below. You can also scan the **List Apps** bar code to output a list of all your apps.

```
||| ||||| ||| ||| ||| |||||| ||| |||
PLGDCE1.
```
* Decoding Apps On

```
||| |||| ||| ||| ||||||| |||| ||||
PLGDCE0.
```
Decoding Apps Off

```
||| |||| ||| ||||| ||| |||| ||||
PLGFOE1.
```
* Formatting Apps On

```
||| ||| ||| ||| ||| |||||| |||
PLGFOE0.
```
Formatting Apps Off

```
||| |||| ||| ||||| |||| ||||
PLGINF.
```
List Apps

Note: *You must reset your device in order for the apps setting to take effect.*

EZConfig-Scanning Introduction

EZConfig-Scanning provides a wide range of PC-based programming functions that can be performed on the 8680i connected to your PC. EZConfig-Scanning allows you to download upgrades to the 8680i's firmware, change programmed parameters, and create and print programming bar codes. Using EZConfig-Scanning, you can even save/open the programming parameters for the 8680i. This saved file can be e-mailed or, if required, you can create a single bar code that contains all the customized programming parameters and mail or fax that bar code to any location. Users in other locations can scan the bar code to load in the customized programming.

Reset the Factory Defaults

⚠️ **Caution:** *This selection erases all your settings and resets the 8680i to the original factory defaults. It also disables all plugins.*

If you aren't sure what programming options are in your 8680i, or you've changed some options and want to restore the 8680i to factory default settings, first scan the **Remove Custom Defaults** bar code, then scan **Activate Defaults**. This resets the 8680i to the factory default settings.

DEFOVR.

Remove Custom Defaults

DEFALT.

Activate Defaults

Note: *The 8680i resets and becomes unlinked from the host after using the Defaults commands. See Auto Reconnect Mode on page 22 to relink the 8680i.*

The Menu Commands, beginning on page 183 list the factory default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

9 SERIAL PROGRAMMING COMMANDS

The serial programming commands can be used in place of the programming bar codes. Both the serial commbands and the programming bar codes program the 8680i. For complete descriptions and examples of each serial programming command, refer to the corresponding programming bar code in this manual.

The following commands can be sent via a PC COM port using terminal emulation software.

Conventions

The following conventions are used for menu and query command descriptions:

parameter A label representing the actual value you should send as part of a command.

[*option*] An optional part of a command.

{Data} Alternatives in a command.

bold Names of menus, menu commands, buttons, dialog boxes, and windows that appear on the screen.

Menu Command Syntax

Menu commands have the following syntax (spaces have been used for clarity only): *Prefix Tag SubTag {Data} [, SubTag {Data}] [; Tag SubTag {Data}] [...] Storage*

Prefix Three ASCII characters: SYN M CR (ASCII 22,77,13).

Tag A 3 character case-insensitive field that identifies the desired menu command group.

SubTag A 3 character case-insensitive field that identifies the desired menu command within the tag group.

Data The new value for a menu setting, identified by the Tag and SubTag.

Storage A single character that specifies the storage table to which the command is applied. An exclamation point (!) performs the command's operation on the device's volatile menu configuration table. A period (.) performs the command's operation on the device's non‑volatile menu configuration table. Use the non‑volatile table only for semi‑permanent changes you want saved through a power cycle.

Query Commands

Several special characters can be used to query the device about its settings.

^   What is the default value for the setting(s).

?   What is the device's current value for the setting(s).

*   What is the range of possible values for the setting(s). (The device's response uses a dash (–) to indicate a continuous range of values. A pipe (|) separates items in a list of non‑continuous values.)

Tag Field Usage

When a query is used in place of a Tag field, the query applies to the *entire* set of commands available for the particular storage table indicated by the Storage field of the command. In this case, the SubTag and Data fields should not be used because they are ignored by the device.

SubTag Field Usage

When a query is used in place of a SubTag field, the query applies only to the sub‑set of commands available that match the Tag field. In this case, the Data field should not be used because it is ignored by the device.

Data Field Usage

When a query is used in place of the Data field, the query applies only to the specific command identified by the Tag and SubTag fields.

Concatenation of Multiple Commands

Multiple commands can be issued within one Prefix/Storage sequence. Only the Tag, SubTag, and Data fields must be repeated for each command in the sequence. If additional commands are to be applied to the same Tag, then the new command sequence is separated with a comma (,) and only the SubTag and Data fields of the additional command are issued. If the additional command requires a different Tag field, the command is separated from previous commands by a semicolon (;).

Responses

The device responds to serial commands with one of three responses:

ACK   Indicates a good command which has been processed.

ENQ   Indicates an invalid Tag or SubTag command.

NAK   Indicates the command was good, but the Data field entry was out of the allowable range for this Tag and SubTag combination, e.g., an entry for a minimum message length of 100 when the field will only accept 2 characters.

When responding, the device echoes back the command sequence with the status character inserted directly before each of the punctuation marks (the period, exclamation point, comma, or semicolon) in the command.

Examples of Query Commands

In the following examples, a bracketed notation [ ] depicts a non-displayable response.

Example: What is the range of possible values for Codabar Coding Enable?

> **Enter:**   cbrena*.
>
> **Response:**   CBRENA0-1[ACK]

This response indicates that Codabar Coding Enable (CBRENA) has a range of values from 0 to 1 (off and on).

Example: What is the default value for Codabar Coding Enable?

> **Enter:**   cbrena^.
>
> **Response:**   CBRENA1[ACK]

This response indicates that the default setting for Codabar Coding Enable (CBRENA) is 1, or on.

Example: What is the device's current setting for Codabar Coding Enable?

> **Enter:**   cbrena?.
>
> **Response:**   CBRENA1[ACK]

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on.

Example: What are the device's settings for all Codabar selections?

> **Enter:**   cbr?.
>
> **Response:**   CBRENA1[ACK],
>   SSX0[ACK],
>   CK20[ACK],
>   CCT1[ACK],

MIN2[ACK],
MAX60[ACK],
DFT[ACK].

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on;
the Start/Stop Character (SSX) is set to 0, or Don't Transmit;
the Check Character (CK2) is set to 0, or Not Required;
concatenation (CCT) is set to 1, or Enabled;
the Minimum Message Length (MIN) is set to 2 characters;
the Maximum Message Length (MAX) is set to 60 characters;
and the Default setting (DFT) has no value.

Trigger Commands

You can activate and deactivate the 8680i with serial trigger commands. First, the 8680i must be put in Manual Trigger Mode by scanning a Manual Trigger Mode bar code (page 44), or by sending a serial menu command for triggering (page 45). Once the 8680i is in serial trigger mode, the trigger is activated and deactivated by sending the following commands:

Activate: **SYN T CR**

Deactivate: **SYN U CR**

The 8680i scans until a bar code has been read, until the deactivate command is sent, or until the serial time-out has been reached (see "Read Time-Out" on page 3-45 for a description, and the serial command on page 186).

Advanced Application Programming

The following commands are used when coding user interface commands for the 8680i directly into an application.

Note: *The 8680i Software Development Kit can also be used to program the 8680i UI. See the 8680i Software Development Kit User Guide at www.honeywellaidc.com.*

Beeper and LED Sequences

BEPEHA

This command causes one of the following beeper and LED sequences to be executed, based on a required character parameter, for example, **BEPEHA1**. See Good Read and Error Indicators on page 40 for further information.

1   Execute an LED sequence of 130 milliseconds of good read LED illumination followed by 70 milliseconds of no illumination.

2 Execute an LED sequence of 1500 milliseconds of good read LED illumination followed by 500 milliseconds of no illumination.

3 Execute an LED sequence of 4500 milliseconds of good read LED illumination followed by 500 milliseconds of no illumination.

4 Execute a beep sequence (no LED) of 160 milliseconds at 1600 Hz.

5 Execute a beep sequence (no LED) of 160 milliseconds at 3250 Hz.

6 Execute a beep sequence (no LED) of 160 milliseconds at 4200 Hz.

7 Execute a good read beep sequence.

8 Execute an error beep sequence. When using host acknowledgment, BEPEHA8 also indicates an erroneous host acknowledgment (see Host Acknowledgment on page 36).

a Execute a menu good beep sequence.

b Execute a menu error beep sequence.

Sample

```
char cBeepMenuString[] = "\x16M\x0DBEPHA1.";
SynMenuCmdSync(cBeepMenuString);
```

BEPEXE

This causes a standard beep sequence or an error beep sequence to be executed. BEPEXE requires a numeric parameter, where values of 1, 2 and 3 cause the standard beep sequence and 4 causes the error beep sequence to be executed.

Sample

```
char cBeepMenuString[] = "\x16M\x0DBEPEXE1.";
SynMenuCmdSync(cBeepMenuString);
```

Text String

GUITXT

This command sends left-justified text to the display. The text is in UTF-8 format. If the text is too long, it is truncated.

Byte	Value	Notes
0	0 or 1	The line where the text is placed.
1 … n	UTF-8	The text to display.

This string sends "Hi" to the first line (binary 0):

GUITXT004869

This data is a binary byte 0, followed by the two ASCII characters:

Byte	Value
0	0x00 (line 0)
1	0x48 (**H**)
2	0x69 (**i**)

The hex string encoding is:

Byte	Value
0	0x32 (**0**)
1	0x32 (**0**)
2	0x34 (**4**)
3	0x38 (**8**)
4	0x36 (**6**)
5	0x39 (**9**)

Text Size Line 1

GUIFSU

This command controls the size of the text on the display for line 1.

Byte	Value
0	Small
1	Medium (default)
2	Large

Sample

```
char cFntMenuString[] = "\x16M\x0DGUIFSU1.";
SynMenuCmdSync(cFntMenuString);
```

Text Size Line 2

GUIFSD

This command controls the size of the text on the display for line 2.

Byte	Value
0	Small
1	Medium (default)
2	Large

Sample

```
char cFntMenuString[] = "\x16M\x0DGUIFSD2.";
SynMenuCmdSync(cFntMenuString);
```

Text Color - Foreground Line 1

GUITCU

This command uses a hex string to set the foreground color of the display text for line 1.

Byte	Value
0	Red
1	Green
2	Blue

Valid values are 00–FF. Default = FFFFFF (white).

Sample

```
char cClrMenuString[] = "\x16M\x0DGUITCUFFFFFF.";
SynMenuCmdSync(cClrMenuString);
```

Text Color - Foreground Line 2

GUITCD

This command uses a hex string to set the foreground color of the display text for line 2.

Byte	Value
0	Red
1	Green

Byte	Value
2	Blue

Valid values are 00–FF. Default = FFFFFF (white).

```
char cClrMenuString[] = "\x16M\x0DGUITCDFFFFFF.";
SynMenuCmdSync(cClrMenuString);
```

Text Color - Background

GUITBC

This command uses a hex string to set the background color of the display text.

Byte	Value
0	Red
1	Green
2	Blue

Valid values are 00–FF. Default = 000000 (black).

Sample

```
char cT_ClrMenuString[] = "\x16M\x0DGUITBC000000.";
SynMenuCmdSync(cT_ClrMenuString);
```

Reset the Custom Defaults

If you want the custom default settings restored to your 8680i, scan the **Activate Custom Defaults** bar code below. This resets the 8680i to the custom default settings. If there are no custom defaults, it resets the 8680i to the factory default settings. Any settings that have not been specified through the custom defaults are defaulted to the factory default settings.

Activate Custom Defaults

Note: *This bar code also causes both the 8680i and the host to perform a reset and become unlinked.*

The charts on the following pages list the factory default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

Menu Commands

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Get Started			
Pair the 8680i with Bluetooth Devices			
Pair with a PC or Laptop Bluetooth Serial Port	Host Reconnect Mode	PAPSPP;BT_DNG1	10
	Scanner Reconnect Mode	BT_TRM0,DNG5	10
	* Bluetooth HID Keyboard Connect	PAPBTH	11
	Bluetooth HID Japanese Keyboard Connect	PAPJKB	11
Disconnect from the Host	Bluetooth Disconnect	BT_DNG4,ADR	11
Tap and Pair	*NFC Off	BT_NFC0	12
	NFC On	BT_NFC1	12
Pair with Bluetooth Low Energy (BLE) Devices	HID BLE Connect	PAPLEH	12
	Serial BLE Connect	PAPTIO	12
Pair with an Android, Apple or Windows Mobile Device	Bluetooth HID Keyboard Connect	PAPBTH	13
Enter a Bluetooth PIN	Bluetooth PIN Code	BT_PIN#	13
Link to a Communication and Charge Base or Access Point	CCB/AP Connect	BT_TRM0;BT_EHM0;WIDSCN0	16
	CCB/AP Disconnect	BT_EHM1,DNG1;WIDSCN1	16
Configure the 8680i with EZConfig Cloud for Scanning	Bluetooth Connect - EZCS	PAPSPP;BT_DNG1	16
Set Custom Defaults	Set Custom Defaults	MNUCDP	19
	Save Custom Defaults	MNUCDS	19
Reset Custom Defaults	Activate Custom Defaults	DEFALT	19
Wireless System Operation			
Change a Bluetooth PIN Code	Bluetooth PIN Code	BT_PIN#	21
Auto Reconnect Mode	*Auto Reconnect On	BT_ACM1	22
	Auto Reconnect Off	BT_ACM0	22
Maximum Link Attempts	Maximum Link Attempts	BT_MLA	23
Relink Time-Out	Relink Time-Out	BT_RLT	23
Reset Scanner	Reset Scanner	RESET_	25
Scanner Report	Scanner Report	RPTSCN	25
Scanner Address	Scanner Address	BT_LDA	26
Linked Modes	Unlink Scanner	BT_RMV	26
	Override Locked Scanner	BT_RPL1	26
Out-of-Range Alarm	Scanner Alarm Duration (Range 1 - 3000 sec (*0))	BT_ORD	26
Alarm Sound Type	Scanner Alarm Type	BT_ORW	27

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Scanner Power Time-Out Timer	Timer (0-7200 seconds)	BT_LPT0	28
	200 Seconds	BT_LPT200	28
	400 Seconds	BT_LPT400	28
	900 Seconds	BT_LPT900	28
	3600 Seconds	BT_LPT3600	28
	7200 Seconds	BT_LPT7200	28
Flexible Power Management	*Full Power	BT_TXP100	29
	Medium Power	BT_TXP35	29
	Medium Low Power	BT_TXP5	29
	Low Power	BT_TXP1	29
Batch Mode	Automatic Batch Mode	BATENA1	30
	*Batch Mode Off	BATENA0	30
	Inventory Batch Mode	BATENA2	30
	Persistent Batch Mode	BATENA3	30
Batch Mode Beep	Off	BATBEP0	30
	*On	BATBEP1	30
Batch Mode Storage	*Flash Storage	BATNVS1	31
	RAM Storage	BATNVS0	31
Batch Mode Quantity	*Off	BATQTY0	31
	On	BATQTY1	31
Quantity Codes	0	BATNUM0	32
	*1	BATNUM1	32
	2	BATNUM2	32
	3	BATNUM3	32
	4	BATNUM4	32
	5	BATNUM5	32
	6	BATNUM6	32
	7	BATNUM7	33
	8	BATNUM8	33
	9	BATNUM9	33
Batch Mode Output Order	*FIFO	BATLIF0	33
	LIFO	BATLIF1	33
Total Records	Total Records	BATNRC	33
Delete Last Code	Delete Last Code	BATUND	33
Clear All Codes	Clear All Codes	BATCLR	34
Transmit Records to Host	Transmit Inventory Records	BAT_TX	34

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Batch Mode Transmit Delay	*Off	BATDLY0	34
	Short (ms)	BATDLY250	34
	Medium (ms)	BATDLY500	34
	Long (ms)	BATDLY1000	34
Scanner Name	Name 1-7	BT_NAM#####	35
	Reset	RESET_	36
	Scanner Name	BT_NAM	36
Host Command Acknowledgment	Host ACK On	HSTACK1	37
	*Host ACK Off	HSTACK0	37
	Host ACK Timeout	HSTATO##	38
Input/Output Selections			
Power Up Beeper	Power Up Beeper Off – Scanner	BEPPWR0	39
	*Power Up Beeper On – Scanner	BEPPWR1	39
Beep on BEL Character	Beep on BEL On	BELBEP1	39
	*Beep on BEL Off	BELBEP0	39
Trigger Click	On	BEPTRG1	40
	*Off	BEPTRG0	40
Beeper – Good Read	Off	BEPBEP0	40
	*On	BEPBEP1	40
Beeper Volume – Good Read	Off	BEPLVL0	40
	*Low	BEPLVL1	40
	Medium	BEPLVL2	40
	*High	BEPLVL3	41
Beeper Pitch – Good Read (Frequency)	Low (1600) (min 400Hz)	BEPFQ11600	41
	*Medium (2700 Hz)	BEPFQ12700	41
	High (4200) (max 9000Hz)	BEPFQ14200	41
Vibrate – Good Read	Vibrate – Good Read Off	TFBGRD0	41
	*Vibrate – Good Read On	TFBGRD1	41
	Vibrate Duration	TFBDUR####	42
Beeper Pitch – Error	*Razz (250) (min 200Hz)	BEPFQ2800	42
	Medium (3250)	BEPFQ23250	42
	High (4200) (max 9000Hz)	BEPFQ24200	42
Beeper Duration – Good Read	*Normal Beep	BEPBIP0	42
	Short Beep	BEPBIP1	42
LED – Good Read	Off	BEPLED0	43
	*On	BEPLED1	43

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Number of Beeps – Good Read	*1	BEPRPT1	43
	Range 1 - 9	BEPRPT#	43
Number of Beeps – Error	*1	BEPERR3	43
	Range 1 - 9	BEPERR#	43
Good Read Delay	*No Delay	DLYGRD0	44
	Short Delay (500 ms)	DLYGRD500	44
	Medium Delay (1000 ms)	DLYGRD1000	44
	Long Delay (1500 ms)	DLYGRD1500	44
User–Specified Good Read Delay	Range 0 - 30,000 ms	DLYGRD#####	44
Manual Trigger Modes	*Manual Trigger – Normal	PAPHHF	44
	Manual Trigger – Enhanced	PAPHHS	45
Serial Trigger Mode	Read Time-Out (0 - 300,000 ms) *30,000	TRGSTO####	45
Object Detection Mode	Short Range	TRGMOT9;AOSRNG2	45
	Long Range	TRGMOT9;AOSRNG1	45
Object Detection Trigger	No Trigger	TRGITG1	46
	*Trigger Allowed	TRGITG0	46
Poor Quality Codes	Poor Quality 1D Reading On	DECLDI1	46
	*Poor Quality 1D Reading Off	DECLDI0	46
	Poor Quality PDF Reading On	PDFXPR1	47
	*Poor Quality PDF Reading Off	PDFXPR0	47
Illumination Lights	*Lights On	SCNLED1	47
	Lights Off	SCNLED0	47
Aimer Delay	200 milliseconds	SCNDLY200	47
	400 milliseconds	SCNDLY400	47
	*Off (no delay)	SCNDLY0	48
	User-Specified Aimer Delay Range 0 - 4,000 ms	SCNDLY####	48
Aimer Mode	Off	SCNAIM0	48
	*Interlaced	SCNAIM2	48
Centering	Single Code Centering	DECWIN1;DECTOP49;DECBOT51;DECRGT51;DECLFT49.	49

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Custom Centering	Centering On	DECWIN1	50
	*Centering Off	DECWIN0	50
	Left of Centering Window (*40%)	DECLFT###	50
	Right of Centering Window (*60%)	DECRGT###	50
	Top of Centering Window (*40%)	DECTOP###	50
	Bottom of Centering Window (*60%)	DECBOT###	50
Preferred Symbology	On	PRFENA1	51
	*Off	PRFENA0	51
	High Priority Symbology	PRFCOD##	51
	Low Priority Symbology	PRFBLK##	51
	Preferred Symbology Timeout (*500) Range 100-3000	PRFPTO####	52
	Preferred Symbology Default	PRFDFT	52
Output Sequence Editor	Enter Sequence	SEQBLK	56
Partial Sequence	*Discard Partial Sequence	SEQTTS0	58
	Default Sequence	SEQDFT	58
Require Output Sequence	Required	SEQ_EN2	59
	On/Not Required	SEQ_EN1	59
	*Off	SEQ_EN0	59
Good Read Tone - Output Sequences	Good Read Beep - Each Code in Sequence	BEPSIN0	59
	*Good Read Click - Each Code in Sequence	BEPSIN1	59
	Good Read Beep - Partial Sequence Output	BEPISE0	59
	*Error Tone - Partial Sequence Output	BEPISE1	59
Multiple Symbols	On	SHOTGN1	59
	*Off	SHOTGN0	59
No Read	On	SHWNRD1	60
	*Off	SHWNRD0	60
Video Reverse	Video Reverse Only	VIDREV1	61
	Video Reverse and Standard Bar Codes	VIDREV2	61
	*Video Reverse Off	VIDREV0	61

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Working Orientation	*Upright	ROTATN0	61
	Vertical, Bottom to Top (Rotate CCW 90°)	ROTATN1	62
	Upside Down	ROTATN2	62
	Vertical, Top to Bottom (Rotate CW 90°)	ROTATN3	62
Prefix/Suffix Selections			
Add CR Suffix to All Symbologies		VSUFCR	65
Prefix	Add Prefix	PREBK2##	65
	Clear One Prefix	PRECL2	65
	Clear All Prefixes	PRECA2	65
Suffix	Add Suffix	SUFBK2##	66
	Clear One Suffix	SUFCL2	66
	Clear All Suffixes	SUFCA2	66
Function Code Transmit	*Enable	RMVFNC0	66
	Disable	RMVFNC1	66
Intercharacter Delay	Range 0 - 1000 (5ms increments)	DLYCHR##	67
User Specified Intercharacter Delay	Delay Length 0 - 1000 (5ms increments)	DLYCRX##	67
	Character to Trigger Delay	DLY_XX##	67
Interfunction Delay	Range 0 - 1000 (5ms increments)	DLYFNC##	68
Intermessage Delay	Range 0 - 1000 (5ms increments)	DLYMSG##	68
Data Formatter Selections			
Data Format Editor	*Default Data Format (None)	DFMDF3	70
	Show Data Format	DFMBK3?	70
	Enter Data Format	DFMBK3##	71
	Clear One Data Format	DFMCL3	71
	Clear All Data Formats	DFMCA3	71
Data Formatter	Data Formatter Off	DFM_EN0	85
	*Data Formatter On, Not Required, Keep Prefix/Suffix	DFM_EN1	86
	Data Format Required, Keep Prefix/Suffix	DFM_EN2	86
	Data Formatter On, Not Required, Drop Prefix/Suffix	DFM_EN3	86

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	Transmit	CBRSSX1	91
Codabar Check Char.	*No Check Char.	CBRCK20	91
	Validate, But Don't Transmit	CBRCK21	91
	Validate, and Transmit	CBRCK22	91
Codabar Concatenation	*Off	CBRCCT0	92
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	Require	CBRCCT2	92
Codabar Redundancy	Range (0 – 10) *0	CBRVOT##	92
Codabar Message Length	Minimum (2 – 60) *4	CBRMIN##	93
	Maximum (2 – 60) *60	CBRMAX##	93
Code 39	Default All Code 39 Settings	C39DFT	93
	Off	C39ENA0	93
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Code 39 Start/Stop Char.	*Don't Transmit	C39SSX0	93
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NEC 2 of 5	Default All NEC 2 of 5 Settings	N25DFT	98
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NEC 2 of 5 Message Length	Minimum (2 – 80) *4	N25MIN##	99
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Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
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	Maximum (0 – 80) *80	C93MAX##	100
Code 93 Append	On	C93APP1	100
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Straight 2 of 5 IATA Redundancy	Range (0 – 10) *0	A25VOT##	102
Straight 2 of 5 IATA Message Length	Minimum (1 – 48) *4	A25MIN##	103
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Code 11	Default All Code 11 Settings	C11DFT	104
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UPC-A Check Digit	Off	UPACKX0	110
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UPC-A Number System	Off	UPANSX0	110
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EAN-13 Beginning with 378/379 Addenda Required	* Don't Require Addenda	ARQ3780	118
	Require 2 Digit Addenda	ARQ3781	118
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EAN-13 Beginning with 414/419 Addenda Required	* Don't Require Addenda	ARQ4140	119
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EAN/JAN-8 Addenda Required	*Not Required	EA8ARQ0	124
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	*Off	MSIENA0	125
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MSI Check Character	*Validate Type 10, but Don't Transmit	MSICHK0	126
	Validate Type 10 and Transmit	MSICHK1	126
	Validate 2 Type 10 Chars, but Don't Transmit	MSICHK2	126
	Validate 2 Type 10 Chars and Transmit	MSICHK3	126
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	*Don't Transmit	PLNCKX0	
Postnet Check Digit	Transmit	NETCKX1	
	*Don't Transmit	NETCKX0	
Australian Post Interpretation	Bar Output	AUSINT0	
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	Combination N and C Tables	AUSINT3	
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	*Off	CPCENA0	
	On	CPCENA1	
China Post (Hong Kong 2 of 5) Msg. Length	Minimum (2 - 80) *4	CPCMIN##	
	Maximum (2 - 80) *80	CPCMAX##	
Korea Post	Default All Korea Post Settings	KPCDFT	
	*Off	KPCENA0	
	On	KPCENA1	
Korea Post Msg. Length	Minimum (2 - 80) *4	KPCMIN##	
	Maximum (2 - 80) *48	KPCMAX##	
Korea Post Check Digit	Transmit Check Digit	KPCCHK1	
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	File Format – BMP	IMGFMT8	158

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	*Noise Reduction Off	IMGFSP0	159
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PRODUCT SPECIFICATIONS

8680i Wearable Mini Mobile Computer

Parameter	Specification
Mechanical	
With BAT-SCN03 standard capacity battery:	
Height	1.2 inches (31.3mm)
Length	3.2 inches (81mm)
Width	2.2 inches (56mm)
Weight	5.3 ounces (151g)
With BAT-SCN02 high capacity battery:	
Height	1.4 inches (35mm)
Length	3.2 inches (81mm)
Width	2.2 inches (56mm)
Weight	5.9 ounces (168g)
Electrical	
Illumination	White LED (exempt risk group)
Aiming	650nm high visibility red laser (Class 2)
BAT-SCN03 standard capacity battery:	Lithium ion 3.7v 1150mAh
Expected Number of Scans	3000
Expected Hours of Operation	8 hours
Expected Charge Time	4 hours
BAT-SCN02 high capacity battery	Lithium ion 3.8v 2160mAh
Expected Number of Scans	8000
Expected Hours of Operation	10 hours
Expected Charge Time	4 hours

Parameter	Specification
Radio	
Bluetooth Radio	
Frequency	2.4 to 2.5 GHz (ISM Band) Frequency Hopping
Specification	v.4.2 (BDR, EDR, LE) Class 1
Range	328 ft. (100m) line of sight
Data Rate	Up to 1 Mbps
WiFi Radio	
Frequency	2.4 to 2.5 GHz and 5.1 to 5.85 GHz (ISM Bands)
Specification	802.11a/b/g/n/ac
Data Rate	802.11b: up to 11 Mbps
	802.11a/g: up to 54 Mbps
	802.11n: up to 135 Mbps
	802.11ac: up to 780 Mbps
Environmental	
Operating Temperature	–4° F to 122° F (–20° C to +50° C)
Storage Temperature	–4° F to 140° F (–20°C to +60°C)
Humidity	Up to 95%, non-condensing
Drop	Operational after 30 drops from 5 feet (1.5m) to concrete
Environmental Sealing	IP54
Vibration	Withstands 10G peak from 10 to 500 Hz
ESD	20kV air, 10kV contact
Tumble	Operational after 2000 tumbles from 19.7 inches (.05 m)
Image	
Image Size	844 x 640 pixels
Scan Performance	
Pitch, Skew	±45°, ±60°
Symbol Contrast	20%
Motion Tolerance:	up to 230 inches (584cm) per second in total darkness for 100% UPC at 4 inch (10cm) distance
Depth of Field	
Typical Performance	
100% UPC	44 - 552mm (1.7 - 21.7 in.)
10 mil Code 39	65 - 544mm (2.6 - 21.4 in.)
20 mil Code 39	49 - 812mm (1.9 - 32 in.)
10 mil Data Matrix	113 - 275mm (4.5 - 10.8 in.)
6.7 mil PDF417	120 - 225mm (4.7 - 8.9 in.)
Guaranteed Performance	
100% UPC	48 - 516mm (1.9 - 20.3 in.)

Parameter	Specification
10 mil Code 39	73 - 473mm (2.9 - 18.6 in.)
20 mil Code 39	54 - 593mm (2.1 - 23.3 in.)
10 mil Data Matrix	120- 261mm (4.7 - 10.3 in.)
6.7 mil PDF417	129 - 220mm (5.1 - 8.7 in.)

MB4-SCN02 Charge Base Product Specifications

Parameter	Specification
Mechanical	
Height	1.97 inches (50mm)
Length	5.8 inches (147mm)
Width	5.3 inches (134mm)
Weight	16.6 oz (0.47kg)
Electrical	
Voltage	5.2 volts
Current Draw	1A output for each port
Charge Time	4 hours at room temperature of 46°F to 91°F (8°C to 33°C) 8 hours at a temperatures lower than 46°F (8°C) or higher than 91°F (33°C)
Environmental	
Operating Temperature	32° F to +122° F (0° C to +50° C)
Storage Temperature	-4° F to +140° F (-20° C to +60° C)
Humidity	Up to 95% non-condensing
Mechanical Drop	Operational after 6 drops from 2.9 feet (0.9 m) to concrete
Vibration	2G Peak from 2Hz to 200Hz
ESD Sensitivity	Up to 15kV direct air Up to 8 kV contact and indirect

MB4-BAT-SCN02 Charge Base Product Specifications

Parameter	Specification
Mechanical	
Height	2.68 inches (68mm)
Length	5.8 inches (147mm)
Width	5.3 inches (134mm)
Weight	17.6 oz (0.5kg)

Parameter (Continued)	Specification
Electrical	
Voltage	4.2 volts (BAT-SCN03 standard capacity battery) 4.35 volts (BAT-SCN02 high capacity battery)
Current Draw	1A output for each port
Charge Time	4 hours at room temperature of 46°F to 91°F (8°C to 33°C) 8 hours at a temperatures lower than 46°F (8°C) or higher than 91°F (33°C)
Environmental	
Operating Temperature	32° F to +122° F (0° C to +50° C)
Storage Temperature	-4° F to +140° F (-20° C to +60° C)
Humidity	Up to 95% non-condensing
Mechanical Drop	Operational after 6 drops from 2.9 feet (0.9 m) to concrete
Vibration	2G Peak from 2Hz to 200Hz
ESD Sensitivity	Up to 15kV direct air Up to 8 kV contact and indirect

Required Safety Labels

8680i Wearable Mini Mobile Computer

Compliance and laser label location

LASER LIGHT- DO NOT STARE INTO BEAM
RAYONNEMENT LASER NE PAS REGARDER
DANS LE FAISCEAU. MAX. 1mW: 650 nm. IEC
60825-1:2007 and IEC 60825-1:2014. Pulse duration of
16,8 mSec. Complies with 21 CFR 1040.10 and 1040.11
except for deviations pursuant to Laser Notice No. 50,
dated June 24, 2007.
CLASS 2 LASER PRODUCT.
APPAREIL À LASER DE CLASSE 2.
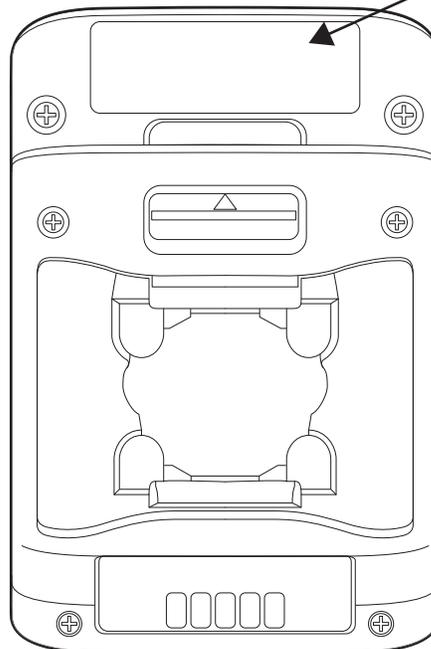
MB4-SCN02 and MB4-BAT-SCN02 Charge Bases

Compliance label locations
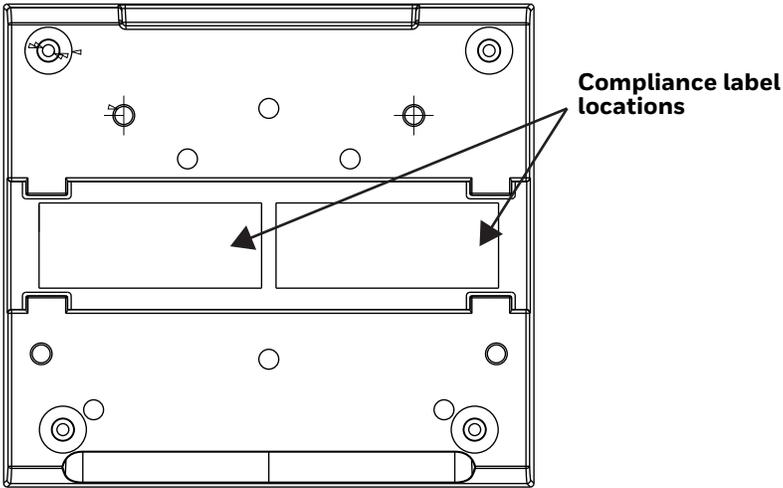
MAINTENANCE AND TROUBLESHOOTING

Repairs

Repairs and/or upgrades are not to be performed on this product. These services are to be performed only by an authorized service center (see Customer Support on page iii).

Maintenance

Your device provides reliable and efficient operation with a minimum of care. Although specific maintenance is not required, the following periodic checks ensure dependable operation:

Clean the Scanner

The scanner housing may be cleaned with a soft cloth or tissue dampened with water (or a mild detergent-water solution.) If a detergent solution is used, rinse with a clean tissue dampened with water only.

⚠️ **Caution:** **Do not submerge the scanner in water. The scanner's housing is not watertight. Do not use abrasive wipes or tissues on the scanner's window or display. Abrasive wipes may scratch the window or display. Never use solvents (e.g., acetone) on the housing, window, or display. Solvents may damage the finish, window, or display.**

Clean the Window or Display

Reading performance may degrade if the scanner's window or display is not clean. If the window or display is visibly dirty, or if the scanner isn't operating well, clean it with a soft cloth or tissue dampened with water (or a mild detergent-water solution.) If a detergent solution is used, rinse with a clean tissue dampened with water only.

Replace the Finger Strap

Replace the finger strap when it becomes old or worn.

1. Open the length of the old finger strap so it is only attached to one side of the device. Slide the silver spring bar to detach the finger strap from the device.
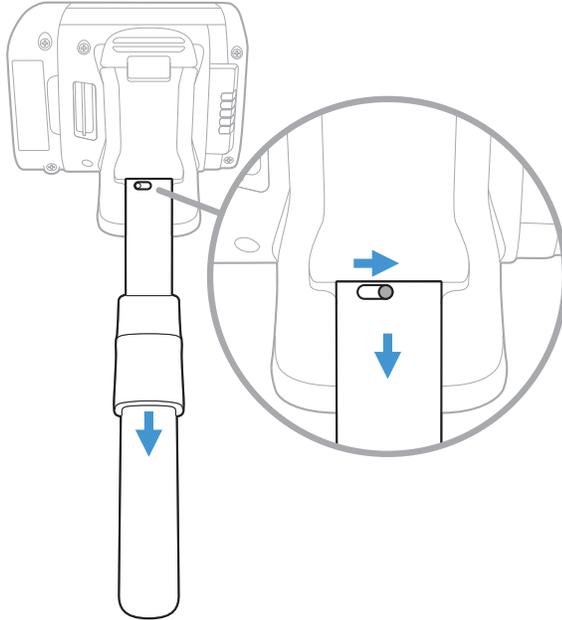
2. Slide and hold the silver spring bar on the new finger strap and slide it into place.

3. Release the spring bar.

Troubleshooting

Note: *Make sure your battery is charged.*

Is the scanner having trouble reading your symbols?

If the scanner isn't reading symbols well, check that the symbols:

- Aren't smeared, rough, scratched, or exhibiting voids.

- Aren't coated with frost or water droplets on the surface.

- Are enabled in the host to which the scanner connects.

Is the bar code displayed but not entered into the application?

The bar code is displayed on the host device correctly, but you still have to press a key to enter it (the Enter/Return key or the Tab key, for example).

- You need to program a suffix. Programming a suffix enables the scanner to output the bar code data plus the key you need (such as "CR") to enter the data

into your application. Refer to Prefix/Suffix Overview on page 63 for further information.

The scanner won't read your bar code at all.

- Scan the sample bar codes from Sample Symbols, beginning on page 225. If the scanner reads the sample bar codes, check that your bar code is readable.

- Verify that your bar code symbology is enabled (see Chapter 6).

- If the scanner still can't read the sample bar codes, scan All Symbologies on page 90.

A REFERENCE CHARTS

Symbology Charts

Note: *"m" represents the AIM modifier character. Refer to International Technical Specification, Symbology Identifiers, for AIM modifier character details.*

Prefix / Suffix entries for specific symbologies override the universal (All Symbologies, 99) entry.

Refer to Data Edit beginning on page 63 and Data Format beginning on page 69 for information about using Code ID and AIM ID.

Linear Symbologies

	AIM		Honeywell	
Symbology	**ID**	**Possible modifiers (m)**	**ID**	**Hex**
All Symbologies				99
Codabar	]F*m*	0-1	a	61
Code 11	]H3		h	68
Code 128	]C*m*	0, 1, 2, 4	j	6A
Code 32 Pharmaceutical (PARAF)	]X0		<	3C
Code 39 (supports Full ASCII mode)	]A*m*	0, 1, 3, 4, 5, 7	b	62
TCIF Linked Code 39 (TLC39)	]L2		T	54
Code 93 and 93i	]G*m*	0-9, A-Z, a-m	i	69
EAN	]E*m*	0, 1, 3, 4	d	64
EAN-13 (including Bookland EAN)	]E0		d	64
EAN-13 with Add-On	]E3		d	64
EAN-13 with Extended Coupon Code	]E3		d	64
EAN-8	]E4		D	44

	AIM		Honeywell	
Symbology	**ID**	**Possible modifiers (m)**	**ID**	**Hex**
EAN-8 with Add-On	]E3		D	44
GS1				
GS1 DataBar	]e*m*	0	y	79
GS1 DataBar Limited	]e*m*		{	7B
GS1 DataBar Expanded	]e*m*		}	7D
GS1-128	]C1		I	49
2 of 5				
China Post (Hong Kong 2 of 5)	]X0		Q	51
Interleaved 2 of 5	]I*m*	0, 1, 3	e	65
Matrix 2 of 5	]X0		m	6D
NEC 2 of 5	]X0		Y	59
Straight 2 of 5 IATA	]R*m*	0, 1, 3	f	66
Straight 2 of 5 Industrial	]S0		f	66
MSI	]M*m*	0, 1	g	67
Telepen	]B*m*		t	74
UPC		0, 1, 2, 3, 8, 9, A, B, C		
UPC-A	]E0		c	63
UPC-A with Add-On	]E3		c	63
UPC-A with Extended Coupon Code	]E3		c	63
UPC-E	]E0		E	45
UPC-E with Add-On	]E3		E	45
UPC-E1	]X0		E	45

	AIM		Honeywell	
Add Honeywell Code ID				5C80
Add AIM Code ID				5C81
Add Backslash				5C5C

2D Symbologies

	AIM		Honeywell	
Symbology	**ID**	**Possible modifiers (m)**	**ID**	**Hex**
All Symbologies				99
Aztec Code	]z*m*	0-9, A-C	z	7A
Chinese Sensible Code (Han Xin Code)	]X0		H	48

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
Codablock A	]O6	0, 1, 4, 5, 6	V	56
Codablock F	]O*m*	0, 1, 4, 5, 6	q	71
Code 49	]T*m*	0, 1, 2, 4	l	6C
Data Matrix	]d*m*	0-6	w	77
Dot Code	]J0		.	2E
GS1	]e*m*	0-3	y	79
GS1 Composite	]e*m*	0-3	y	79
GS1 DataBar Omnidirectional	]e*m*	0-3	y	79
MaxiCode	]U*m*	0-3	x	78
PDF417	]L*m*	0-2	r	72
MicroPDF417	]L*m*	0-5	R	52
QR Code	]Q*m*	0-6	s	73
Micro QR Code	]Q*m*		s	73

Postal Symbologies

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
All Symbologies				99
Australian Post	]X0		A	41
British Post	]X0		B	42
Canadian Post	]X0		C	43
China Post	]X0		Q	51
InfoMail	]X0		,	2c
Intelligent Mail Bar Code	]X0		M	4D
Japanese Post	]X0		J	4A
KIX (Netherlands) Post	]X0		K	4B
Korea Post	]X0		?	3F
Planet Code	]X0		L	4C
Postal-4i	]X0		N	4E
Postnet	]X0		P	50

ASCII Conversion Chart (Code Page 1252)

In keyboard applications, ASCII Control Characters can be represented in 3 differ-ent ways, as shown below. The CTRL+X function is OS and application dependent. The following table lists some commonly used Microsoft functionality. This table applies to U.S. style keyboards. Certain characters may differ depending on your Country Code/PC regional settings.

Non–printable control characters			Keyboard Control + ASCII (CTRL+X) Mode		
			Control + X Mode Off (KBDCAS0)	Windows Mode Control + X Mode On (KBDCAS2)	
DEC	HEX	Char		CTRL + X	CTRL + X function
0	00	NUL	Reserved	CTRL+ @	
1	01	SOH	NP Enter	CTRL+ A	Select all
2	02	STX	Caps Lock	CTRL+ B	Bold
3	03	ETX	ALT Make	CTRL+ C	Copy
4	04	EOT	ALT Break	CTRL+ D	Bookmark
5	05	ENQ	CTRL Make	CTRL+ E	Center
6	06	ACK	CTRL Break	CTRL+ F	Find
7	07	BEL	Enter / Ret	CTRL+ G	
8	08	BS	*(Apple Make)*	CTRL+ H	History
9	09	HT	Tab	CTRL+ I	Italic
10	0A	LF	*(Apple Break)*	CTRL+ J	Justify
11	0B	VT	Tab	CTRL+ K	hyperlink
12	0C	FF	Delete	CTRL+ L	list, left align
13	0D	CR	Enter / Ret	CTRL+ M	
14	0E	SO	Insert	CTRL+ N	New
15	0F	SI	ESC	CTRL+ O	Open
16	10	DLE	F11	CTRL+ P	Print
17	11	DC1	Home	CTRL+ Q	Quit
18	12	DC2	PrtScn	CTRL+ R	
19	13	DC3	Backspace	CTRL+ S	Save
20	14	DC4	Back Tab	CTRL+ T	
21	15	NAK	F12	CTRL+ U	
22	16	SYN	F1	CTRL+ V	Paste
23	17	ETB	F2	CTRL+ W	
24	18	CAN	F3	CTRL+ X	
25	19	EM	F4	CTRL+ Y	?
26	1A	SUB	F5	CTRL+ Z	?
27	1B	ESC	F6	CTRL+ [	?
28	1C	FS	F7	CTRL+ \	?
29	1D	GS	F8	CTRL+]	?
30	1E	RS	F9	CTRL+ ^	?
31	1F	US	F10	CTRL+ -	?
127	7F	⌂	NP Enter		?

Lower ASCII Reference Table

> *Note:* *Windows Code page 1252 and lower ASCII use the same characters.*

Printable Characters

DEC	HEX	Character	DEC	HEX	Character	DEC	HEX	Character
32	20	<SPACE>	64	40	@	96	60	`
33	21	!	65	41	A	97	61	a
34	22	"	66	42	B	98	62	b
35	23	#	67	43	C	99	63	c
36	24	$	68	44	D	100	64	d
37	25	%	69	45	E	101	65	e
38	26	&	70	46	F	102	66	f
39	27	'	71	47	G	103	67	g
40	28	(	72	48	H	104	68	h
41	29	)	73	49	I	105	69	i
42	2A	*	74	4A	J	106	6A	j
43	2B	+	75	4B	K	107	6B	k
44	2C	,	76	4C	L	108	6C	l
45	2D	-	77	4D	M	109	6D	m
46	2E	.	78	4E	N	110	6E	n
47	2F	/	79	4F	O	111	6F	o
48	30	0	80	50	P	112	70	p
49	31	1	81	51	Q	113	71	q
50	32	2	82	52	R	114	72	r
51	33	3	83	53	S	115	73	s
52	34	4	84	54	T	116	74	t
53	35	5	85	55	U	117	75	u
54	36	6	86	56	V	118	76	v
55	37	7	87	57	W	119	77	w
56	38	8	88	58	X	120	78	x
57	39	9	89	59	Y	121	79	y
58	3A	:	90	5A	Z	122	7A	z
59	3B	;	91	5B	[	123	7B	{
60	3C	<	92	5C	\	124	7C		
61	3D	=	93	5D	]	125	7D	}
62	3E	>	94	5E	^	126	7E	~
63	3F	?	95	5F	_	127	7F	⌂

Extended ASCII Characters

DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
128	80	€	Ç	up arrow ↑	0x48
129	81		ü	down arrow ↓	0x50
130	82	‚	é	right arrow ⟶	0x4B
131	83	ƒ	â	left arrow ⟵	0x4D
132	84	„	ä	Insert	0x52
133	85	…	à	Delete	0x53
134	86	†	å	Home	0x47
135	87	‡	ç	End	0x4F
136	88	ˆ	ê	Page Up	0x49
137	89	‰	ë	Page Down	0x51
138	8A	Š	è	Right ALT	0x38
139	8B	‹	ï	Right CTRL	0x1D

DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
				Extended ASCII Characters (Continued)	
140	8C	Œ	î	Reserved	n/a
141	8D		ì	Reserved	n/a
142	8E	Ž	Ä	Numeric Keypad Enter	0x1C
143	8F		Å	Numeric Keypad /	0x35
144	90		É	F1	0x3B
145	91	'	æ	F2	0x3C
146	92	'	Æ	F3	0x3D
147	93	"	ô	F4	0x3E
148	94	"	ö	F5	0x3F
149	95	•	ò	F6	0x40
150	96	–	û	F7	0x41
151	97	—	ù	F8	0x42
152	98	˜	ÿ	F9	0x43
153	99	™	Ö	F10	0x44
154	9A	š	Ü	F11	0x57
155	9B	›	¢	F12	0x58
156	9C	œ	£	Numeric Keypad +	0x4E
157	9D		¥	Numeric Keypad -	0x4A
158	9E	ž	Pts	Numeric Keypad *	0x37
159	9F	Ÿ	ƒ	Caps Lock	0x3A
160	A0		á	Num Lock	0x45
161	A1	¡	í	Left Alt	0x38
162	A2	¢	ó	Left Ctrl	0x1D
163	A3	£	ú	Left Shift	0x2A
164	A4	¤	ñ	Right Shift	0x36
165	A5	¥	Ñ	Print Screen	n/a
166	A6	¦	ª	Tab	0x0F
167	A7	§	º	Shift Tab	0x8F
168	A8	¨	¿	Enter	0x1C
169	A9	©	⌐	Esc	0x01
170	AA	ª	¬	Alt Make	0x36
171	AB	«	½	Alt Break	0xB6
172	AC	¬	¼	Control Make	0x1D
173	AD		¡	Control Break	0x9D
174	AE	®	«	Alt Sequence with 1 Character	0x36
175	AF	¯	»	Ctrl Sequence with 1 Character	0x1D
176	B0	°	░		
177	B1	±	▒		
178	B2	²	▓		
179	B3	³	│		
180	B4	´	┤		
181	B5	µ	╡		
182	B6	¶	╢		
183	B7	·	╖		
184	B8	¸	╕		
185	B9	¹	╣		
186	BA	º	║		
187	BB	»	╗		
188	BC	¼	╝		
189	BD	½	╜		
190	BE	¾	╛		
191	BF	¿	┐		
192	C0	À	└		
193	C1	Á	┴		

Extended ASCII Characters (Continued)					
DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
194	C2	Â	┬		
195	C3	Ã	├		
196	C4	Ä	─		
197	C5	Å	í		
198	C6	Æ	╞		
199	C7	Ç	╟		
200	C8	È	╚		
201	C9	É	╔		
202	CA	Ê	╩		
203	CB	Ë	╦		
204	CC	Ì	╠		
205	CD	Í	═		
206	CE	Î	╬		
207	CF	Ï	╧		
208	D0	Ð	╨		
209	D1	Ñ	╤		
210	D2	Ò	╥		
211	D3	Ó	╙		
212	D4	Ô	╘		
213	D5	Õ	╒		
214	D6	Ö	╓		
215	D7	×	╫		
216	D8	Ø	╪		
217	D9	Ù	┘		
218	DA	Ú	┌		
219	DB	Û	█		
220	DC	Ü	▄		
221	DD	Ý	▌		
222	DE	Þ	▐		
223	DF	ß	▀		
224	E0	à	α		
225	E1	á	ß		
226	E2	â	Γ		
227	E3	ã	π		
228	E4	ä	Σ		
229	E5	å	σ		
230	E6	æ	µ		
231	E7	ç	τ		
232	E8	è	Φ		
233	E9	é	Θ		
234	EA	ê	Ω		
235	EB	ë	δ		
236	EC	ì	∞		
237	ED	í	φ		
238	EE	î	ε		
239	EF	ï	∩		
240	F0	ð	≡		
241	F1	ñ	±		
242	F2	ò	≥		
243	F3	ó	≤		
244	F4	ô	⌠		
245	F5	õ	⌡		
246	F6	ö	÷		
247	F7	÷	≈		

Extended ASCII Characters (Continued)					
DEC	**HEX**	**CP 1252**	**ASCII**	**Alternate Extended**	**PS2 Scan Code**
248	F8	ø	°		
249	F9	ù	·		
250	FA	ú	·		
251	FB	û	√		
252	FC	ü	^{n}		
253	FD	ý	^{2}		
254	FE	þ	■		
255	FF	ÿ			

# ISO 2022/ISO 646 Character Replacements

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the bar codes were created. The data characters should then appear properly.

Code Page Selection Method/ Country	Standard	Keyboard Country	Honeywell Code Page Option
United States (standard ASCII)	ISO/IEC 646-IRV	n/a	1
Automatic National Character Replacement	ISO/IEC 2022	n/a	2 (default)
Binary Code page	n/a	n/a	3
Default "Automatic National Character replacement" selects the below Honeywell Code Page options for Code128, Code 39 and Code 93.			
United States	ISO/IEC 646-06	0	1
Canada	ISO /IEC 646-121	54	95
Canada	ISO /IEC 646-122	18	96
Japan	ISO/IEC 646-14	28	98
China	ISO/IEC 646-57	92	99
Great Britain (UK)	ISO /IEC 646-04	7	87
France	ISO /IEC 646-69	3	83
Germany	ISO/IEC646-21	4	84
Switzerland	ISO /IEC 646-CH	6	86
Sweden / Finland (extended Annex C)	ISO/IEC 646-11	2	82
Ireland	ISO /IEC 646-207	73	97
Denmark	ISO/IEC 646-08	8	88
Norway	ISO/IEC 646-60	9	94
Italy	ISO/IEC 646-15	5	85
Portugal	ISO/IEC 646-16	13	92

Code Page Selection Method/Country	Standard	Keyboard Country	Honeywell Code Page Option
Spain	ISO/IEC 646-17	10	90
Spain	ISO/IEC 646-85	51	91

COUNTRY	Country Keyboard	Honeywell CodePage	35	36	64	91	92	93	94	96	123	124	125	126
Dec			35	36	64	91	92	93	94	96	123	124	125	126
Hex			23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	0	1	#	$	@	[	\	]	^	`	{	|	}	~
CA	54	95	#	$	à	â	ç	ê	î	ô	é	ù	è	û
CA	18	96	#	$	à	â	ç	ê	É	ô	é	ù	è	û
JP	28	98	#	$	@	[	¥	]	^	`	{	|	}	–
CN	92	99	#	¥	@	[	\	]	^	`	{	|	}	–
GB	7	87	£	$	@	[	\	]	^	`	{	|	}	~
FR	3	83	£	$	à	°	ç	§	^	µ	é	ù	è	¨
DE	4	84	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
CH	6	86	ù	$	à	é	ç	ê	î	ô	ä	ö	ü	û
SE/FI	2	82	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
DK	8	88	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
NO	9	94	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	–
IE	73	97	£	$	Ó	É	Í	Ú	Á	ó	é	í	ú	á
IT	5	85	£	$	§	°	ç	é	^	ù	à	ò	è	ì
PT	13	92	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
ES	10	90	#	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
ES	51	91	#	$	·	¡	Ñ	Ç	¿	`	´	ñ	ç	¨

ISO / IEC 646 National Character Replacements

Keyboard Key References

6E		70 71 72 73		74 75 76 77		78 79 7A 7B		7C 7D 7E
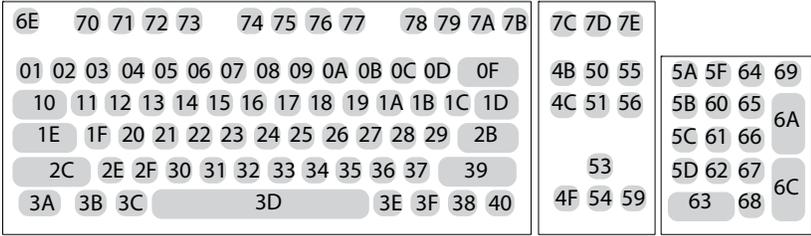
104 Key U.S. Style Keyboard
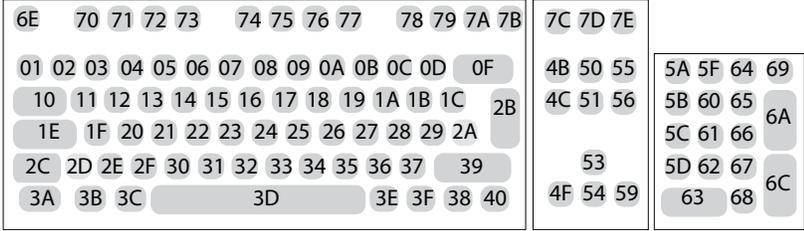
105 Key European Style Keyboard

SAMPLE SYMBOLS

UPC-A

0 123456 7890

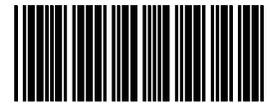**Interleaved 2 of 5**
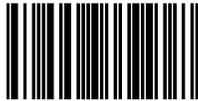
01234567890

EAN-13

9 780330 290951

Code 128

Code 128

Code 39
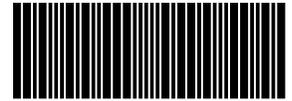
BC321

Codabar

A13579B

Code 93

123456–9$

Straight 2 of 5 Industrial

123456

Matrix 2 of 5

6543210

RSS-14

(01) 00123456789012

PDF417

Car Registration

Code 49

1234567890

SAMPLE SYMBOLS (CONTINUED)
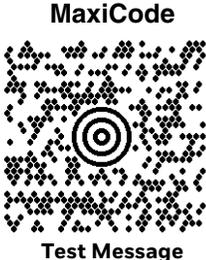
Postnet

Zip Code

Data Matrix

Test Symbol

QR Code

Numbers

MaxiCode

Test Message

Micro PDF417

Test Message

PROGRAMMING CHART

```
K0K
```
0

```
K1K
```
1

```
K2K
```
2

```
K3K
```
3

```
K4K
```
4

```
K5K
```
5

```
K6K
```
6

```
K7K
```
7

```
K8K
```
8

```
K9K
```
9

KAK
A

KBK
B

KCK
C

KDK
D

KEK
E

KFK
F

MNUSAV.
Save

MNUABT.
Discard

RESET_.
Reset

Note: If you make an error while scanning the letters or digits (before scanning **Save**), scan **Discard**, scan the correct letters or digits, and **Save** again.

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