

**Honeywell**

# 8690i

Wearable RFID Mini Mobile Computer



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**User Guide**

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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 [honeywell.com/PSStechnicalsupport](https://honeywell.com/PSStechnicalsupport).

For our latest contact information, see [sps.honeywell.com](https://sps.honeywell.com).

## Product Service and Repair

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## Limited Warranty

For warranty information, go to [sps.honeywell.com](https://sps.honeywell.com) and click **Support > Warranties**.





## About This Manual

This User Guide provides installation and programming instructions for the 8690i 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 barcodes in this guide or the use of Honeywell software tools like EZConfig.

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

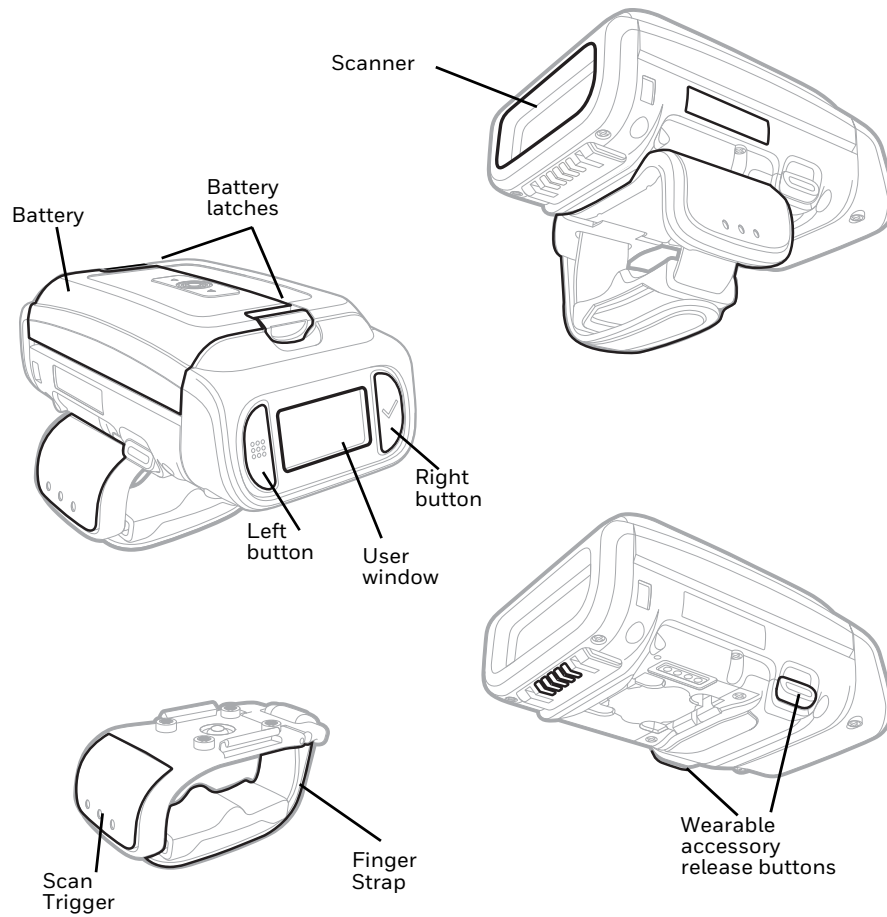
**Note:** *Some commands in this guide may require an Advanced License.*

## 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.

# 8690i Overview

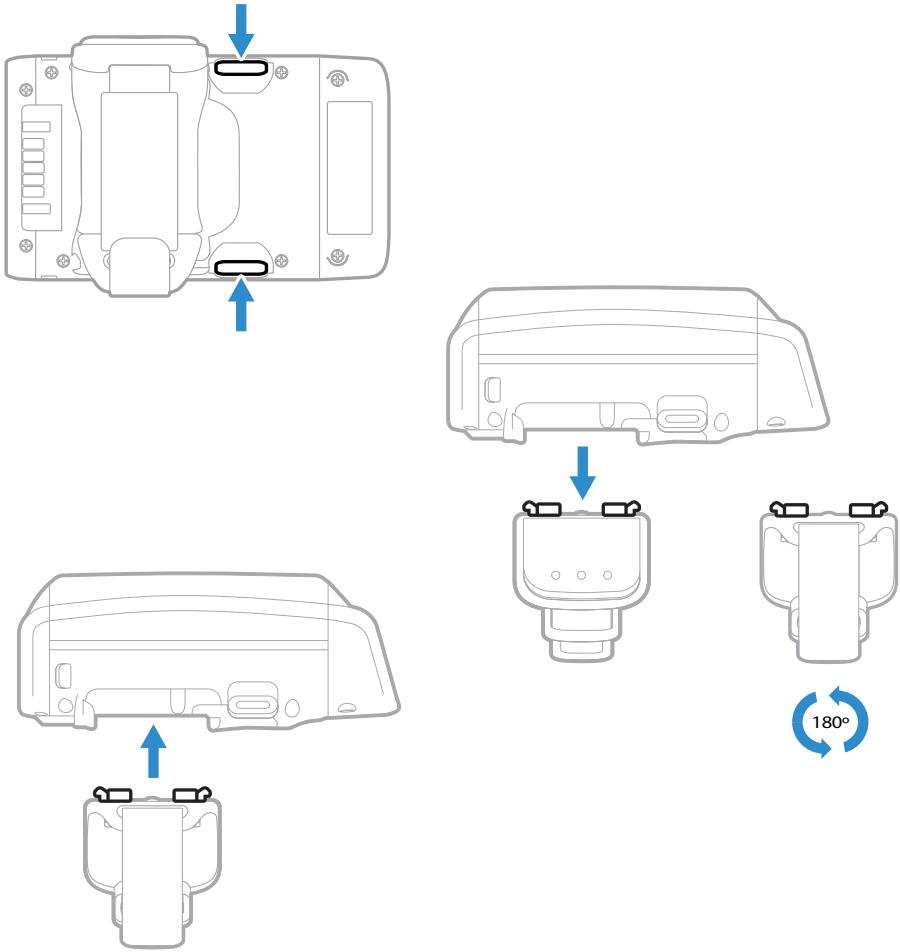


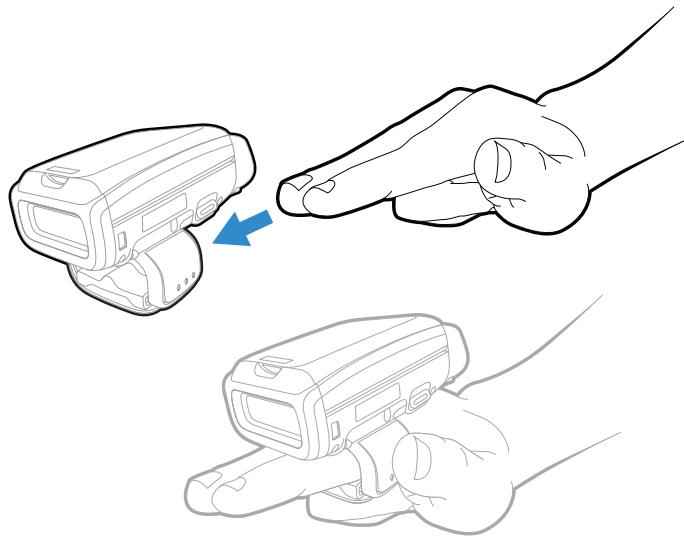
## Use the 8690i with a Wearable Accessory

The 8690i module can be attached to a triggered ring or a hand strap.

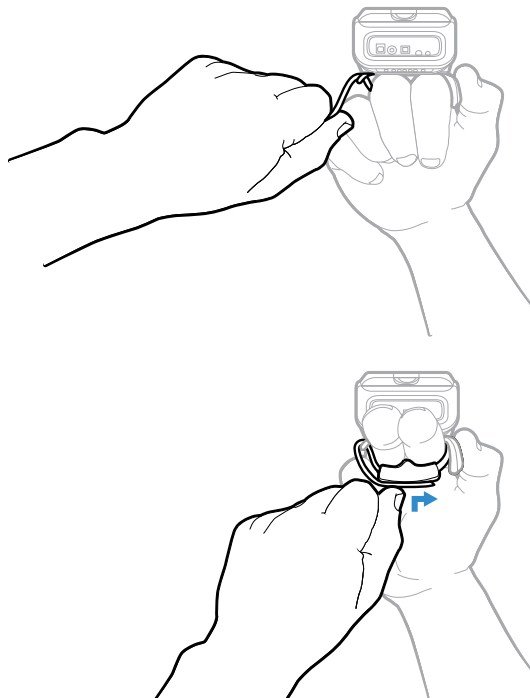
# Right or Left Handed Operation

To release the triggered ring, turn over the 8690i. Press the two release buttons on either side of the trigger. Rotate the trigger 180° and snap it into place to change the operation to the correct hand.



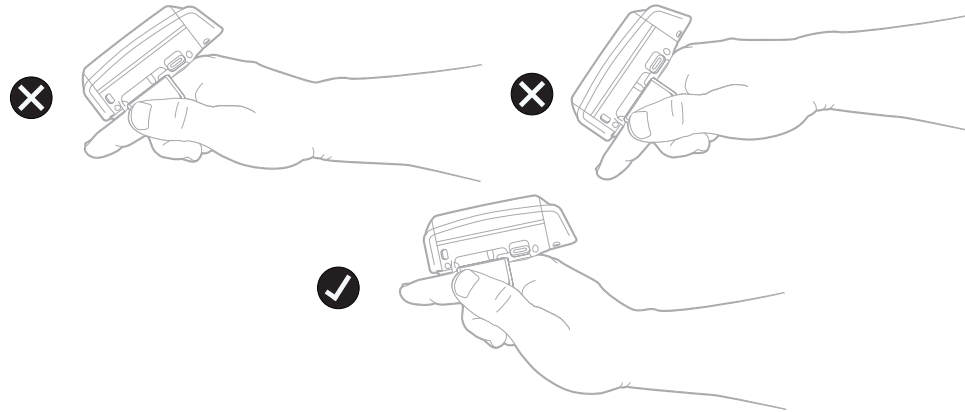


1. Press the free end through the loop and press the excess down to secure the strap.



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

## Wrist Position When Scanning



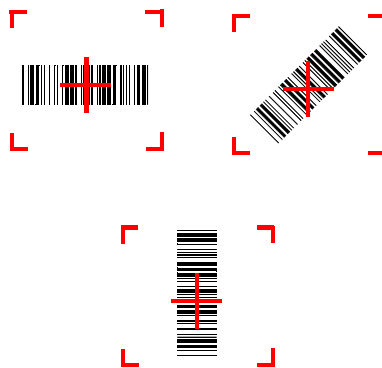
**Warning: Do not stare directly into the laser beam.**

## Reading Technique

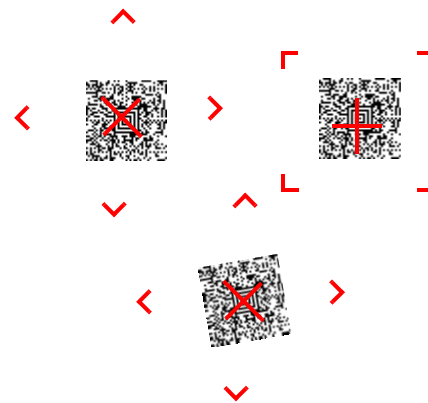
### Center the Aimer

The 8690i has a view finder that projects a bright aiming pattern. This aiming pattern should be centered over the barcode, but it can be positioned in any direction for a good read.

**Linear barcodes with aiming pattern**



**2D Matrix symbol with aiming pattern**



The aiming pattern is smaller when the 8690i 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 8690i 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.

# Battery and Charge Information

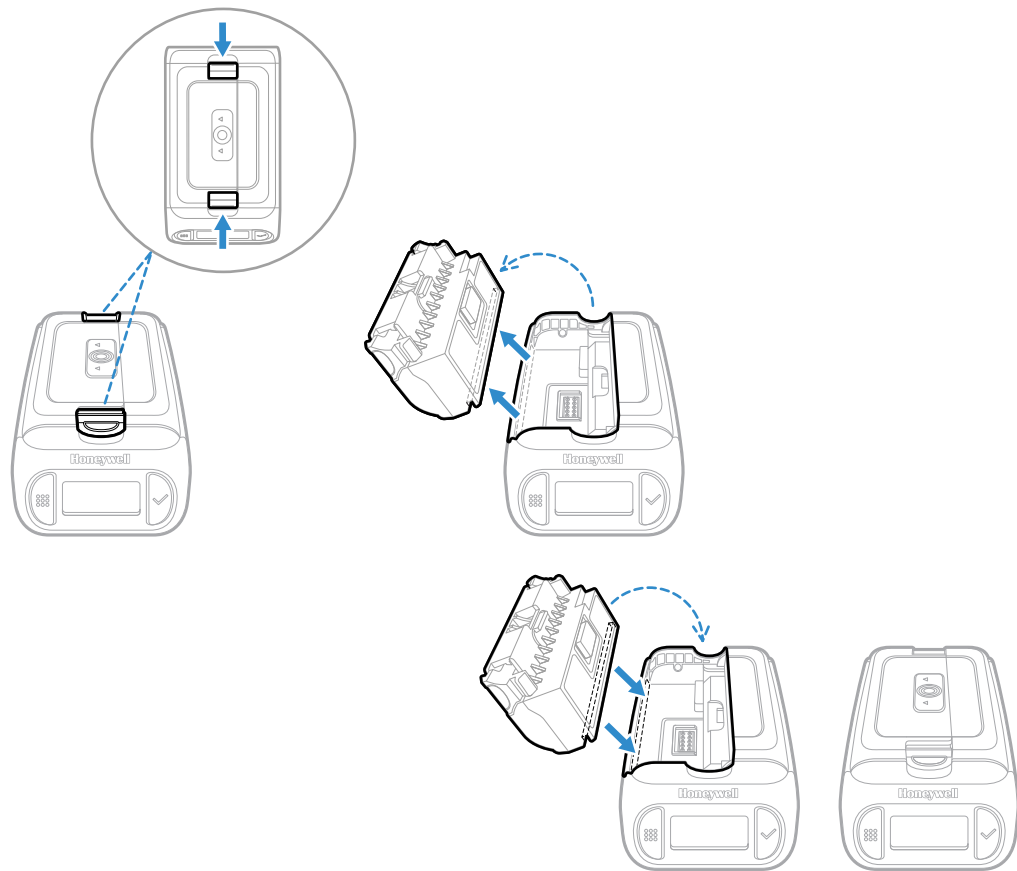
The battery must be fully charged before the first use. An MB4/MB12-BAT-SCN07, MB4/MB12-SCN07, or an MB4A/MB12A-SCN07 Charging Station must be purchased separately.

## Replace the Battery

When the battery is low, the 8690i 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. If performing a hot swap, the device will stay operational for approximately 100 seconds while replacing the battery.

**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 8690i.

The BAT-SCN07 high 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 number BAT-SCN07 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 8690i.
- 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 xv 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



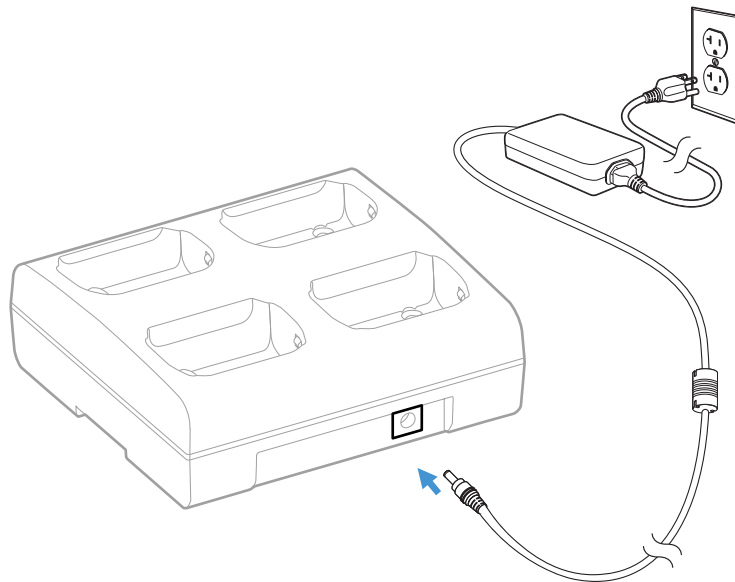
When the battery has reached the end of its useful life, the battery should be disposed of by a qualified recycler or hazardous materials handler. Do not incinerate the battery or dispose of the battery with general waste materials. You may send the 8690i's battery to us. (postage paid). The shipper 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 xv) 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-SCN07/MB12-SCN07 Multi-Bay Device Charger Quick Start Guide or the MB4-BAT-SCN07/MB12-BAT-SCN07 Multi-Bay Battery Charger Quick Start Guide, available at [sps.honeywell.com](https://sps.honeywell.com) for complete information about the operation of the chargers.

### Multi-Bay Device Chargers

Line the 8690i's battery contacts up with the contacts in the charging pocket. Firmly press the 8690i straight down into the battery charging pocket.



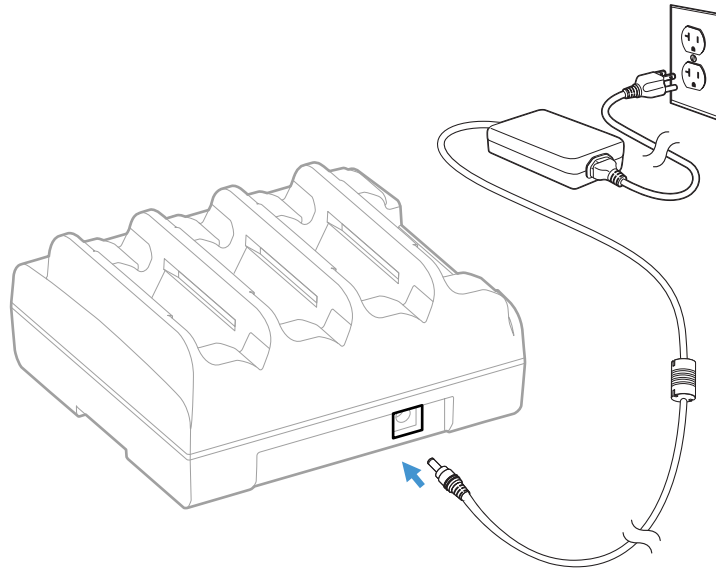
It is important that 8690is are inserted into the charging pocket correctly. Inserting the battery incorrectly could result in damage to the 8690i or the charger.

When the 8690i 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

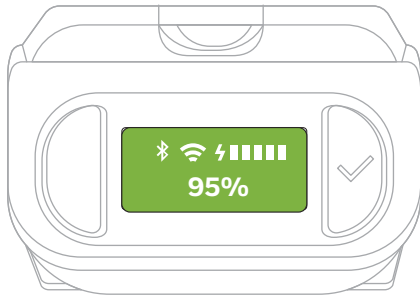
Line the battery's contacts up with the contacts on the charging pocket. Firmly press the battery into the battery charging pocket. The LED to the left of the pocket lights up in an amber color when the battery is properly inserted.



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 device 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 device.

## WiFi and Bluetooth Status

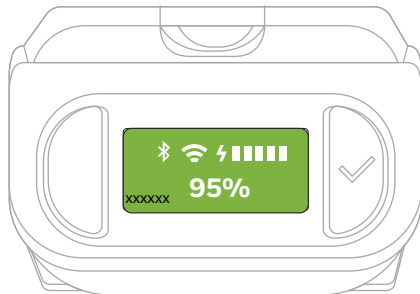
The following symbols indicate the status of your WiFi and Bluetooth connections.

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

# Screen Display Settings

These commands shows additional information in the lower left corner of the display. *Default = Off.*



These commands turn the icon bar On or Off. *Default = Off.*



# Connect the 8690i to Your Network

## Pair the 8690i with Bluetooth Devices

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

The 8690i 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 device. If the device and the host become disconnected, the host will manage the reconnection.

1. Scan the **Host Reconnect Mode** barcode 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 Guide for pairing instructions.)
3. Once your host device has located the device, select the 8690i device name from the list displayed.

**Note:** If you are connecting to a device with Bluetooth 2.0 or lower and requires a PIN, see [Enter a Bluetooth PIN](#) on page 15.

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

### Pair with a PC or Laptop Bluetooth HID Keyboard Mode

In this mode, the 8690i pairs with a Bluetooth device using a HID keyboard. This mode is used to connect the 8690i for firmware updates through EZConfig for Scanning.

1. Scan a **Bluetooth HID Keyboard Connect** barcode 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 Guide for pairing instructions.)

3. Once your host device has located the device, select the 8690i device name from the list displayed.

**Note:** If you are connecting to a device with Bluetooth 2.0 or lower and requires a PIN, see [Enter a Bluetooth PIN on page 15](#).

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

## 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 8690i to Bluetooth Low Energy HID devices. Scan **Serial BLE Connect** to establish two-way communication between the 8690i and Bluetooth Low Energy serial devices.



## NFC Mode (Tap and Pair) for Android™ Devices

You can pair your Android™ phone with the 8690i by touching the devices together.

1. Scan the **Bluetooth Serial Port Profile Connect** or **Bluetooth HID Keyboard Connect** barcode.



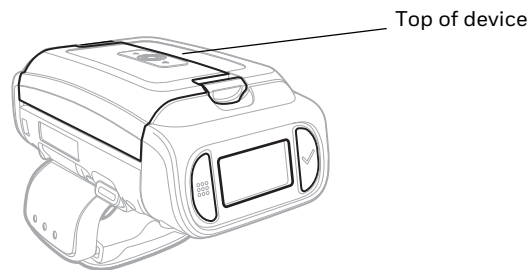
2. Scan the **NFC On** barcode with the 8690i.





3. Make sure the NFC setting is **On** in your phone.
4. Touch the Android phone to the device.

**Note:** Be sure to that the phone touches on top of the device on the battery side and not on the sides or front of the scan engine.



5. The phone recognizes the device and prompts you to pair.
6. Verify the pairing of the 8690i in your phone's Bluetooth settings.

## Pair with an Android, Apple™ or Windows® Mobile Device: HID Keyboard Mode

The 8690i can pair with Android, Apple, and Windows mobile devices, excluding Windows CE and Mobile.

1. Set your mobile device so it searches for other Bluetooth devices. (Refer to your mobile device's User Guide for pairing instructions.)
2. Scan the **Bluetooth HID Keyboard Connect** barcode below.



**Bluetooth HID Japanese Keyboard Connect**

3. On the mobile device, the 8690i device is shown as a keyboard. Click on it to pair.

**Note:** If you are connecting to a device with Bluetooth 2.0 or lower and requires a PIN, see [Enter a Bluetooth PIN](#) on page 15.

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

## Enter a Bluetooth PIN

If your host device does not automatically pair with the 8690i, a PIN is displayed. This PIN must be scanned within 30 seconds. Using the 8690i, you must quickly scan **Bluetooth PIN Code** below, then scan the numeric barcode(s) for the PIN code from the chart below, then scan the **Save** barcode.





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

## Virtual Keyboard

Once your 8690i has been connected directly to a smart phone or laptop, you can toggle the virtual keyboard on your device using the 8690i trigger. If you have paired with an Apple device, the on-screen keyboard is activated by pressing the 8690i 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 or Dolphin CT40 or CT60 Mobile Computer

1. Scan the **Bluetooth Serial Port Profile Connect** barcode for serial port connection or **Bluetooth HID Keyboard Connect** barcode for HID keyboard emulation connection.



**Bluetooth Serial Port Profile Connect**



**Bluetooth HID Keyboard Connect**

2. Use the 8690i to scan the EZPairing barcode that is either supplied with the device, attached to the device, or displayed on the screen. The EZPairing barcode begins with [FNC3} LnkB, followed by 12 digits, like the sample below.



3. The Bluetooth symbol appears in the user window when the 8690i pairs with a host. Once the 8690i battery is charged and you have paired it to a host device, you may begin scanning barcodes. Verify the 8690i operation by scanning a barcode from the [Sample Symbols](#) beginning on page 251.

## Legacy Mode

In Legacy Mode, the device works in SPP.



**\* Legacy Mode**

## Compatibility Mode

In Compatibility Mode, the device can work with HID, SPP, or other Bluetooth profiles. Bluetooth needs to be set manually before scanning this barcode.



**Compatibility Mode  
(Optional)**

## Pair with a Zebra® Device

1. Scan the **Bluetooth Serial Port Profile Connect** barcode for serial port connection or **Bluetooth HID Keyboard Connect** barcode for HID keyboard emulation connection.



BT\_TRM0,DNG4.

**Bluetooth Serial Port Profile Connect**



PAPBTH.

**Bluetooth HID Keyboard Connect**

2. Use the 8690i to scan the barcode that is either supplied with the device, attached to the device, or displayed on the screen. The barcode begins with {FNC3} B, followed by 12 digits, like the sample below.



Bxxxxxxxxxxxx

3. The Bluetooth symbol appears in the user window when the 8690i pairs with a host. Once the 8690i battery is charged and you have paired it to a host device, you may begin scanning barcodes. Verify the 8690i operation by scanning a barcode from the [Sample Symbols](#) beginning on page 251.

## Pair with a Honeywell Communication and Charge Base or Access Point

The 8690i 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** barcode. To remove this connection, scan the **CCB/AP Disconnect**.



BT\_TRM0;BT\_EHM0;WIDSCN0.

**CCB/AP Connect**

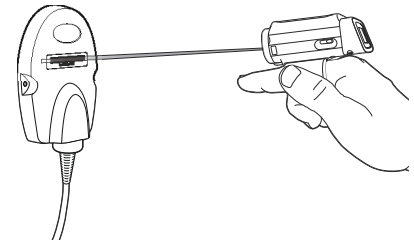


BT\_EHM1,DNG1;WIDSCN1.

**CCB/AP Disconnect**

**Note:** *The 8690i 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 barcode that came with your CCB or Access Point to that device.
3. Scan the linking barcode on the CCB or Access Point to establish a connection between the CCB or Access Point and the device. 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.



## Pair with a Vocollect Device

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

1. Scan the **Bluetooth Serial Port Profile Connect** barcode below.



BT\_TRM0,DNG4.

**Bluetooth Serial Port Profile Connect**

2. Configure the 8690i with the termination characters used for your workflow. This is often a carriage return and line feed, which can be programmed by scanning the following barcode:



SUFBK2990D0A.

**CR/LF Suffix**

See [Suffix Selections](#) if you require other termination characters.

3. In the VoiceConsole, set the Vocollect device to:
  - Pairing type **Bluetooth Scanner**
  - Connection mode **Device listens for peripheral connection**
  - Security type **Disabled**
4. Simple scan-based pairing can be accomplished by creating a dedicated pairing barcode and applying it to each Vocollect device. The EZPairing barcode begins with {FNC3} LnkB, followed by 12 digits, like the sample below.



5. The Bluetooth symbol changes from crossed out or flashing to continuously lit in the user window status screen when the 8690i pairs with a host. (See [WiFi and Bluetooth Status](#).) Once the 8690i battery is charged and you have paired it to a host device, you may begin scanning barcodes. Verify the 8690i operation by scanning a barcode from the [Sample Symbols](#), beginning on page 251.

## Disconnect from the Host

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



## Unpair When Charging

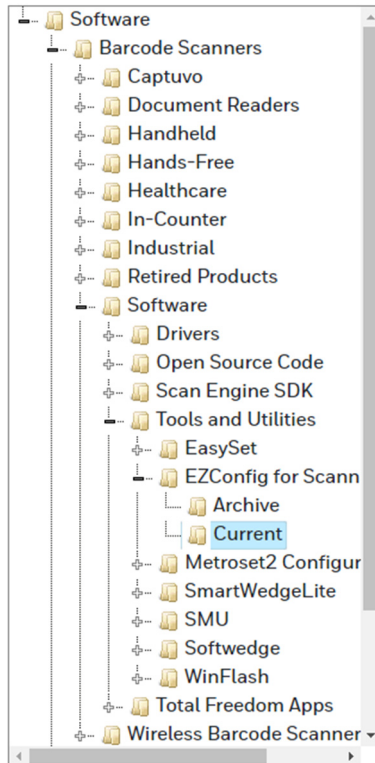
If you want the 8690i to automatically unpair when placed in a charger, scan the **Unpair When Charging** barcode below. When set to **Off**, placing the 8690i in the charger has no effect on pairing. *Default = Off.*



# Configure the 8690i with EZConfig for Scanning

Use the EZConfig for Scanning tool to configure your 8690i online:

1. Access the Honeywell Technical Support Downloads Portal at <https://hsmftp.honeywell.com>.
2. Go to **Software > Barcode Scanners > Software > Tools and Utilities > EZConfig for Scanning > Current**.



3. Download the **Setup** version of EZConfig for Scanning.
4. Once EZConfig is installed, scan the **Bluetooth Connect - EZCS** barcode below.



PAPSPP;BT\_DNG1.

**Bluetooth Connect - EZCS**

5. Open EZConfig to configure your 8690i.

## Connect the 8690i to WiFi

The 8690i 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 8690i can be configured for WiFi networks using EZConfig for Scanning.

1. Access the Wi-Fi properties on your PC. You will need this information to fill out the EZConfig for Scanning form.
2. Open **EZConfig for Scanning** after connecting via Bluetooth ([page 21](#)).
3. Select the **Scan Data Window** tab, then the **Create WiFi Barcode** tab.
4. Select **SSID encryption type**.
5. Enter **WiFi SSID**.
6. Enter **WiFi Encryption Key**.
7. Enter **Preshared Key**.
8. Enter **Roaming threshold**. The range is -60 to -100.
9. Select **Supported bands**.
10. For DHCP IP, check **DHCP server**. For Static IP, make sure **DHCP server** is unchecked.
11. For Static IP:
  - a. Enter the **IP address** of the 8690i.
  - b. Enter the **Subnet Mask** from the computer.
  - c. Enter the **Default Gateway** from the computer.
12. Enter the computer IP address in **IP of the barcode decoder server**.
13. Enter **TCP port** as **3390**.
14. Click **Create 2D Wifi Barcode**.
15. Print the barcode and scan it with the 8690i to connect to the Wi-Fi network.

## Menu Barcode Security Settings

Honeywell scanners are programmed by scanning menu barcodes or by sending serial commands to the 8690i. If you want to restrict the ability to scan menu codes, you can use the Menu Barcode Security settings. Please contact the nearest technical support office (see [Technical Assistance](#) on page xv) 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** barcode 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 commands you want to save for your custom defaults, scan the **Save Custom Defaults** barcode.



**Note:** Scanning the **Save Defaults** barcode also causes both the 8690i and the host to perform a reset and become unlinked. You must relink (pair) the 8690i 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 previously 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** barcode, 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 8690i, scan the **Activate Custom Defaults** barcode below. This is the recommended default barcode for most users. It resets the 8690i to the custom default settings. If there are no custom defaults, it resets the 8690i to the factory default settings. Any settings that have not been specified through the custom defaults are defaulted to the factory default settings.



**Note:** The 8690i resets and becomes unlinked from the host after using the Defaults commands. See [Auto Reconnect Mode](#) on page 28 to relink the 8690i.

# Create and Use RFID Applications

This section explains how to use and create RFID applications on the 8690i.

## RFID Applications

The 8690i communicates with a Host system through the BRI Commands as defined in the Basic Reader Interface (BRI) Programmer Reference Manual.

BRI Commands can be sent over Wi-Fi or BT Serial port interface. BRI Commands sent through these interfaces must include a <SYN> B header appended and terminated by a <CR><LF> for the command to be sent to the RFID module.

To access the BRI Manual, visit [sps.honeywell.com](https://sps.honeywell.com).

## Creating Applications

You must create an application for the 8690i before it can read and write tags. Follow this general outline for developing your RFID application:

1. Write your application on a development workstation (your desktop PC)
2. Install and test the application on your mobile computer.

If you do not have an application but want to verify that your 8690i can read and write tags, you can download the demo application from the Honeywell website.

3. Go to <https://hsmftp.honeywell.com/>
4. Select **Software > Barcode Scanners > Wireless Barcode Scanners**
5. Select **8690i RFID Wearable Mini Mobile Computer > 8690i SDK for Windows**
6. Download and install onto your device.

## Configure RFID Settings

Use the BRI to change the settings for the RFID module in the 8690i. As you install and test applications, you can configure the RFID settings for the best system performance.

**Note:** RFID range will be greatest when 8690i and RFID tag antenna polarization is aligned.



## Enable Header

Enables the header for scanned data. Scanning a data barcode will cause the data to be appended with an EVT:DCE header.



RFTHDR0.

**Disable**



RFTHDR1.

**\*Enable**

## RFID Wi-Fi Pass Through

When this is set to a non-zero value that represents the Wi-Fi port number and the Wi-Fi is connected over this set port you can send data without requiring the <SYN> B header. This allows the use of RFID through BRI APIs that don't support <SYN>B headers. This feature can be disabled by setting this menu command to 0.

To change the port number for the RFTWFP command, scan the barcode below and then scan the appropriate numeric barcodes from the [Appendix Prog Chart](#). Scan **Save** to save your selection. You can also generate a single barcode with the port number in it using EZConfig.



RFTWFP0.

**\*Disable**



RFTWFP.

**Enable (for set port number)**

## RFTTRG

This menu command is used to send a trigger/un-trigger event to the in BRI format over the active interface (WIFI/BT SPP). When set to true the Pressing/Releasing the trigger should cause a BRI appended event "EVT:TRIGGER" to be sent back over interface. The event will be a "EVT:TRIGGER PULL GPIO 1"( when pressed) or a "EVT:TRIGGER RELEASE GPIO 0"(Released). This is useful when we have BRI applications that need some way of knowing trigger has been activated/de-activated to perform some operation (ex: start RFID or POLL tags etc.).



RFTTRG0.

**\*Disable**



RFTTRG1.

**Enable**

## RFTDBS

When enabled, a trigger press will disable the barcode scanning. This can be used in conjunction with the RFTTRG. This is useful if you need the trigger press to send trigger event back over active interface to indicate to peer/server but not turn on the scanning. This helps reduce battery usage as well when RFID is the sole need of the 8690i and not barcode scanning.



RFTDBS0.

**\*Disable**



RFTDBS1.

**Enable**

# WIRELESS SYSTEM OPERATION

The following information describes wireless settings. For information about connecting to a wireless or Bluetooth network, see [Connect the 8690i to Your Network](#), beginning on page 12.

## Change the Bluetooth PIN Code

Some devices require a PIN code as part of the Bluetooth security features. The 8690i default PIN is **1234**, which you may need to enter the first time you connect to your host. When using multiple 8690i's, you may want to change the PIN so each 8690i is uniquely identified. The PIN code must be between 1 and 16 characters. To change the PIN for the 8690i, scan the barcode below and then scan the appropriate numeric barcodes from the [Programming Chart](#), beginning on page 253. Scan **Save** to save your selection.



BT\_PIN.

Bluetooth PIN

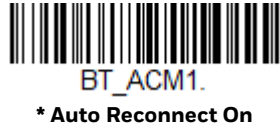
## Minimize Bluetooth/ISM Band Network Activity

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 8690i automatically begins the relink process when a loss of connection is detected. When the **Auto Reconnect On** barcode is scanned, the 8690i begins the relink process immediately, without user intervention. *Default = Auto Reconnect On.*



**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
8690i out of range	Relink occurs automatically. If maximum number of link attempts is unsuccessful, then the 8690i must be relinked by either pressing the trigger or relinking the 8690i to the host. See <a href="#">Maximum Link Attempts</a> on page 28.	The 8690i is relinked by pressing the trigger or relinking to the host.
Host reset (firmware upgrade or power cycle)	8690i behaves as if out of range.	No attempt to relink made while host is powered off. Trigger must be pressed to initiate relinking.
8690i power down due to Power Time-Out Timer setting (see <a href="#">page 2-33</a> )	Trigger must be pressed.	
8690i reset due to firmware upgrade	Relink occurs automatically.	
8690i reset due to battery change	Relink occurs automatically.	

## Maximum Link Attempts

The Maximum Link Attempts setting controls the number of times the 8690i tries to form a connection with a host. During the connection setup process, the 8690i 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 8690i does not attempt to reconnect to a host. Pressing the trigger, scanning a host linking barcode, or pairing the 8690i with a host resets the attempt count and the 8690i tries to link again.

Scan the **Maximum Link Attempts** barcode, then scan the number of attempts for the setting (from 0-100) from the [Programming Chart](#), beginning on page 253. Scan **Save** to save the setting. *Default = 0.*



**Note:** *When Auto Reconnect Mode is On, setting Maximum Link Attempts to zero causes the 8690i to try to link until the Power Time-Out Timer setting (see [page 2-33](#)) expires. When Auto Reconnect Mode is Off, setting Maximum Link Attempts to zero causes the 8690i 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 8690i to a host typically lasts up to 5 seconds. This is the time when the 8690i 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 8690is that are connected to a host. An extra 7 seconds may be required when a connection is successful.*

Scan the **Relink Time-Out** barcode, then scan the number of seconds for the setting (from 1-100) from the [Programming Chart](#), beginning on page 253. Scan **Save** to save the setting. *Default = 3 seconds.*



## Bluetooth/ISM Network Activity Examples

### Default values

When the 8690i goes out of range, the 8690i 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 8690i powers off and data is lost.

### **Maximum Link Attempts set to 15** **Other values at default setting**

When the 8690i 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 ( $8 \times 15 = 120$ ), or about 2 minutes, the 8690i stops trying to connect to the host. After one hour, the 8690i 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 8690i 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 8690i stops trying to connect to the host. After one hour, the 8690i powers off and data is lost. Refer to [Auto Reconnect Mode](#), page 28, 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 [Power Time-Out Timer](#) on page 2-33.

The 8690i attempts to connect to the host every 15 seconds, measured from one attempt start to the next attempt start. After one half hour, the 8690i powers off.

## Communication Between the 8690i and the Host

When data is scanned, the data is sent to the host system. The 8690i 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 barcode has been scanned correctly.

## 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 8690i 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 8690i and host, depending on the environment, is 330 feet (~100m). See [Batch Mode](#), page 34, for information about controlling this range.

## System Conditions

The components of the wireless system interact in specific ways as you move the 8690i out of range, bring the 8690i back in range, or swap 8690is between two hosts. The following information explains the wireless system operating conditions.

## 8690i Is Out of Range

The 8690i is in communication with its host, even when it is not transmitting barcode data. Whenever the 8690i can't communicate with the host for a few seconds, it is out of range. If the 8690i is out of range and you scan a barcode, the device issues an error tone indicating that there was no communication with the host. Refer to [Out-of-Range Alarm](#), page 32 and [Auto Reconnect Mode](#), page 28.

## 8690i Is Moved Back Into Range

The 8690i relinks if the 8690i or the host have been reset, or the 8690i comes back into range. If the 8690i 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 32 and [Auto Reconnect Mode](#), page 28 for further information.

## Reset Device

Scanning this barcode reboots the 8690i and causes it to relink with the host.



## Scanner Report

Scan the barcode below to generate a report for the connected 8690i devices. The report indicates the port, 8690i name, and address. To assign a name to your 8690i, refer to [Device Name](#), page 40.



## Device Address

Scan the barcode below to determine the address of the 8690i you are using.



## Unlink a Device

If a host has an 8690i linked to it, that 8690i must be unlinked before a new 8690i can be linked. Once the previous 8690i is unlinked, it no longer communicates with the host. To unlink the 8690i from a host, scan the **Unlink device** barcode below.



## Override Locked Device

If you need to replace a broken or lost 8690i that is linked to a host, scan the **Override Locked device** barcode below with a new 8690i and pair that 8690i with the host. The locked link is overridden; the broken or lost 8690i's link with the host is removed, and the new 8690i is linked.



## Out-of-Range Alarm

If your 8690i is out range of the host, an alarm sounds from the 8690i. The alarm stops when the 8690i is moved closer to the host, when the host links to another 8690i, or when the alarm duration expires. To set the alarm duration, scan the barcode below and then set the time-out duration (from 0-3000 seconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 0 sec (no alarm).*



**Note:** *If you are out of range when you scan a barcode, 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 barcode and then scanning a digit (0-7) barcode and the **Save** barcode on the [Programming Chart](#), beginning on page 253. *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

## Power Time-Out Timer

When there is no activity within a specified time period, the 8690i enters low power mode. Scan the appropriate power time-out barcode 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 8690i goes into power down mode. Whenever the trigger is pressed, the timer is reset. The 8690i does not go into power down mode when the battery is charging. *Default = 3600 seconds.*



**Note:** *When the 8690i 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 8690i is then ready to use.*

## Batch Mode

Batch mode is used to store barcode data when a device 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 device is back in range or when the records are manually transmitted. For more information, see [Offline Mode](#) on page 225.

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

**Inventory Batch Mode** stores barcode 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 device in the base, or scan [Transmit Inventory Records](#) (page 39). When the device's buffer space is full, any barcodes scanned generate an error tone. In order to scan barcodes again, the data must be transmitted to the base or Access Point. Once the data is transmitted, it is cleared in the device.

**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 device. If you want to transmit more than once, you can do so using this mode. In order to clear the device's buffer, you must scan [Clear All Codes](#) (see page 39).

*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 [Inventory Batch Mode](#) (page 35), the device beeps every time a barcode is scanned. When Batch Mode Beep is **On**, you will also hear a click when each barcode 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 device 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 device writes any untransmitted data to flash memory prior to powering down. The data will still be there when the device powers back up. However, the device 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 device 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 device 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 barcodes scanned, rather than a single barcode multiple times. For example, if you scan three barcodes 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 38](#)), 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 barcode data and the quantity, refer to [Data Format](#) beginning on page 89.*

*Default = Batch Mode Quantity Off.*



BATQTY0.

\* Batch Mode Quantity Off



BATQTY1.

Batch Mode Quantity On

# Enter Quantities

Quantity Codes ([page 38](#)) 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 barcode 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 barcode.
2. Scan the quantity **5** barcode.

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

1. Scan the item's barcode.
2. Scan the quantity **1** barcode.
3. Scan the quantity **5** barcode.
4. Scan the quantity **0** barcode.
5. Scan the quantity **0** barcode.

**Example:** Change a quantity of 103 to 10.

To correct an incorrect quantity, scan the quantity 0 barcode to replace the incorrect digits, then scan the correct quantity barcodes.

1. Scan the quantity **0** barcode to change the quantity to 1030.
2. Scan the quantity **0** barcode to change the quantity to 0300.
3. Scan the quantity **1** barcode to change the quantity to 3001.
4. Scan the quantity **0** barcode to change the quantity to 0010.

*Default = 1.*

## Quantity Codes



BATNUM0.

0



BATNUM1.

\*1

## Quantity Codes (Continued)



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 barcodes scanned when in Batch Mode, scan **Total Records**.



## Delete Last Code

If you want to delete the last barcode scanned when in Batch Mode, scan **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**.



## Transmit Records to Host

If you are operating in Inventory Batch Mode (see [Inventory Batch Mode](#) on page 35), you must scan the following barcode to transmit all the stored data to the host system.



# 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 xv](#)) 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 8690i you are using for identification purposes. For example, you may want to have a unique identifier for an 8690i that is receiving specific commands sent from the host.

The default name is in the format “Honeywell-8690i-SN-#####” (12 digit serial number)”. If you have more than one 8690i linked to a host and they all have the same name, the first 8690i linked to the host receives commands. When renaming a series of 8690is with identical names, unlink all except one of the 8690is from the host.

Perform the rename operation using either the barcodes on [page 41](#), or by sending the serial command **:DeviceName:BT\_NAMNewName**. where *DeviceName* is the current name of the 8690i, and *NewName* is the new name for the 8690i. If you wish to change the names of additional 8690is, link them one at a time and repeat the **:DeviceName:BT\_NAMNewName**. command for each 8690i.



To rename 8690i with sequential numeric names, scan the barcodes below. Scan the **Reset** code after each name change and wait for the 8690i to relink to the host before scanning a barcode to rename the next 8690i.



You may also scan the **Device Name** barcode below and scan a number for the 8690i name. For example, if you wanted to name the linked 8690i “312,” you would scan the barcode below, scan the **3**, **1**, and **2** barcodes on the [Programming Chart](#), beginning on page 253, then scan **Save**. Scan the **Reset** barcode and wait for the 8690i to relink to the host.



# Host Acknowledgment

Some applications require that the host terminal (or server) validate incoming barcode data (database look-up) and provide acknowledgment to the device whether or not to proceed. In Host ACK Mode, the device 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 device 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 43).
- A comma must be used as a terminator.
- The host terminal software must be capable of interpreting the barcode data, make decisions based on the data content, and send out appropriate escape commands to the device.

The commands to which the device responds are listed on page 43. 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 device 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 device for an on-file product

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

When a barcode is scanned, the device 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 barcode 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 device receives an escape command. The device 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 device times out.
- Once condition 1 or 2 above has been met, the device is ready to scan again, and the process repeats.

A time-out occurs if the device 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 device was not received.

## Host ACK On/Off



HSTACK1.  
Host ACK On



HSTACK0.  
\* Host ACK Off

## Host ACK Timeout

You can set a timeout for the length of time the device waits for a valid escape command when using Host Acknowledgment Mode. Set the length (in seconds) for a timeout by scanning the following barcode, then setting the timeout (from 1-90 seconds) by scanning digits from the [Programming Chart](#), beginning on page 253, then **Save**. *Default = 10.*



HSTATO.  
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.

Command	Action
[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.

## WiFi Menu Commands

### Select Data Transmit

If Bluetooth and WiFi are both on, you can select which interface the data is transmitted to the host. *Default = WiFi.*



WET\_BT0.

\* WiFi



WET\_BT1.

Bluetooth

### Enable WiFi

*Default = WiFi Enabled.*



WETENA0.

WiFi Disabled



WETENA1.

\* WiFi Enabled

### Beep on WiFi Connection

The device can be programmed to beep when it connects to a WiFi network. *Default = Beep On.*



WETBEP1.

\* Beep On



WETBEP0.

Beep Off

## WiFi Timeout

You can set a timeout for the length of time the device waits to connect to a wireless network. Set the length (in milliseconds) for a timeout by scanning the following barcode, then setting the timeout (from 1,000-360,000 milliseconds) by scanning digits from the [Programming Chart](#), beginning on page 253, then **Save**.  
*Default = 10,000 ms.*



WETCTO.

Wireless Timeout

## Select WiFi Band



WETBND0.

\* Auto Selected (2.4 GHz or 5 GHz)



WETBND1.

2.4 GHz



WETBND2.

5 GHz

## Reset WiFi Menu Settings Defaults

If you want the default settings restored to your device, scan the **Activate WiFi Defaults** barcode below. It resets the device to the custom WiFi default settings. If there are no custom defaults, it resets the device to the factory WiFi default settings.



WETDFT.

Activate WiFi Defaults

## IP Address

Set the device's IP address.

**Note:** This setting will not work if using *DHCP*.



## Default Gateway

Scan the barcode below to use a default gateway.

**Note:** This barcode will not work if using *DHCP*.



## DHCP

The DHCP is turned On. To turn it Off, scan the **DHCP Off** barcode. *Default = DHCP On.*



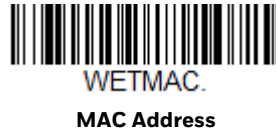
## DNS Address

Scan the barcode below to provide an IPv4 address in ASCII hexadecimal format for a domain name.



## MAC Address

Scan the barcode below to determine the MAC address of the device you are using.



## Bluetooth Data Routing

Scan the **Bluetooth Data Routing** barcode to send data to a Bluetooth connected device such as a printer.



## Set Roaming Threshold

You can set the roaming threshold for the device. The threshold is measured in dBm and are negative. They represent the range in RSSI when the device is expected to switch during roaming. The range is 60 to 100 dBm. *Default = 65 dBm.*



## Get IP Address

Scan the barcode below to get the IP address of the device.



## Set Subnet Mask

This barcode will set the subnet mask to the device. It provides the range of values the last few IPv4 addresses the router will support.

**Note:** *This barcode will not work with [DHCP](#).*



# Certificate Authority (CA)

## Show Certificate

Scan the barcode below to show the CA certificate filename.



## Extract Root Certificate

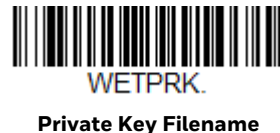
Scan the **Enable Extraction** barcode to extract the root certificate from the CA certificate for TLS encrypted/authenticated connections. *Default = Disable Extraction.*



## Private Key

### Private Key Filename

You can assign a filename to the client private key. The file should be a PEM, DER, or PFX based password file. To unlock the private key, see [Bluetooth Data Routing](#).



### Private Key Password

You can create a password to access the private key.





## Encryption Key

Scan the **Encryption Key** barcode below and scan a number for the encryption key. The length must be 11 characters. For example, if you wanted the encryption key to be “12345678901,” you would scan the barcode below, scan the **1, 2, 3, 4, 5, 6, 7, 8, 9, 0,** and **1** barcodes on the [Programming Chart](#), beginning on page 253, then scan **Save**. Scan the **Reset** barcode and wait for the 8690i to relink to the host.



WETCPH.

**Encryption Key**

## EAP Settings

### EAP Username

Scan the **EAP Username** barcode to set the username.



WETEID.

**EAP Username**

### EAP Anonymous Username

You may assign an EAP anonymous username when you use an EAP based authentication.



WETAID.

**EAP Anonymous Username**

### EAP Password

Scan the barcode below to set the **EAP Password**.



WETPWD.

**EAP Password**

### EAP Phase 1 Authentication

Scan one of the barcodes below to specify the EAP Phase 1 authentication. *Default = PEAP.*



## EAP Phase 2 Authentication

Scan one of the barcodes below to specify the EAP Phase 2 authentication. *Default = No Authentication.*



## Set System Time for EAP-TLS

Scan the barcode below to set the system time when using a certificate for EAP-TLS authentication.



## SSID

### SSID Encryption Type

Scan one of the barcodes below to specify the SSID encryption type. *Default = WPA-PSK.*



## SSID Encryption Key

This command is used to set the SSID encryption key.



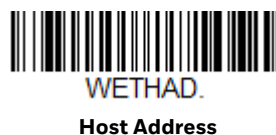
## Specify SSID of the Access Point/Router

To specify the name of SSID of the Access Point or Router, scan the barcode below.



## Host Address

Once the device is WiFi enabled, the device will become a client and attempt a connection with the server. To set the host address scan the barcode below. The IP address should be in an ASCII hexadecimal format.



## Host Address 2

In case the connection to the host server is lost and the server cannot be reached, set Host Address 2 for a backup connection. The IP address should be in an ASCII hexadecimal format.



## Host Port 2

Select a fall-back port for the [SSID Encryption Key](#). When Host Address connection is lost, the port specified will be used.



## Host TCP Port Address

Select Host TCP Port address.



## WEP Keys

### WEP Key 1

Use this command to specify the first key for WEP encryption. It will update as “wep\_key0” in wpa\_supplicant.conf.



## WEP Key 2

Use this command to specify the second key for WEP encryption. It will update as “wep\_key1” in wpa\_supplicant.conf.



WETKY2.

WEP Key 2

## WEP Key 3

Use this command to specify the third key for WEP encryption. It will update as “wep\_key2” in wpa\_supplicant.conf.



WETKY3.

WEP Key 3

## WEP Key 4

Use this command to specify the fourth key for WEP encryption. It will update as “wep\_key3” in wpa\_supplicant.conf.



WETKY4.

WEP Key 4

## Select WEP Key

To select the WEP key used for connection, scan the appropriate barcode below.



WETTXK1.

\* Select WEP Key 1



WETTXK2.

Select WEP Key 2



WETTXK3.

Select WEP Key 3



WETTXK4.

Select WEP Key 4

## Power Up Beeper

The 8690i can be programmed to beep when it's powered up. Scan the **Off** barcode if you don't want a power up beep. *Default = Power Up Beeper On - Scanner.*



BEPPWR0.

Power Up Beeper Off -  
Scanner



BEPPWR1.

\* Power Up Beeper On -  
Scanner

## Beep on BEL Character

You may wish to force the 8690i to beep upon a command sent from the host. If you scan the **Beep on BEL On** barcode below, the 8690i beeps every time a BEL character is received from the host. *Default = Beep on BEL Off.*



BELBEP0.

\*Beep on BEL Off



BELBEP1.

Beep on BEL On

# Trigger Click

To hear an audible click every time the 8690i trigger is pressed, scan the **Trigger Click On** barcode 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 8690i 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 8690i emits on a good read. *Default = Medium.*



BEPFQ11600.  
Low (1600 Hz)



BEPFQ12700.  
\* Medium  
(2700 Hz)



BEPFQ14200.  
High (4200 Hz)

## Vibrate – Good Read

The 8690i vibrates once when a barcode is successfully read, and twice when a programming barcode is successfully read. When a programming barcode is unsuccessful, the 8690i emits one long vibration (2 times the Vibrate Duration length). Scan **Vibrate – Good Read Off** to keep the 8690i 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 barcode below, then set the duration (from 100 - 2,000 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 300 ms.*



TFBDUR.  
Vibrate Duration

## Beeper Pitch – Error

The beeper pitch codes modify the pitch (frequency) of the sound the 8690i 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 8690i emits on a good read. *Default = Normal.*



BEPBIP0.  
\* Normal Beep



BEPBIP1.  
Short Beep

## Good Read Icon

The green checkmark displayed on the LCD can be programmed **On** or **Off** in response to a good read. *Default = On.*



BEPLED1.

\* Good Read On



BEPLED0.

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 LCD in response to a good read. For example, if you program this option to have five beeps, there will be five beeps and five LCD flashes in response to a good read. The beeps and LCD flashes are in sync with one another. To change the number of beeps, scan the barcode below and then scan a digit (1-9) barcode and the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 1.*



BEPRPT.

Number of Good Read Beeps/LCD Flashes

## Number of Beeps – Error

The number of beeps and LCD flashes emitted by the 8690i 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 LCD flashes in response to an error. To change the number of error beeps, scan the barcode below and then scan a digit (1-9) barcode and the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 1.*



BEPERR.

Number of Error Beeps/LCD Flashes

## Good Read Delay

This sets the minimum amount of time before the 8690i can read another barcode.  
*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 barcode below, then set the delay (from 0 - 30,000 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253.



DLYGRD.

User-Specified Good Read Delay

## Manual Trigger Modes

When in manual trigger mode, the 8690i scans until a barcode 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



PAPHHS.

Manual Trigger - Enhanced

# Serial Trigger Mode

You can activate the 8690i either by pressing the trigger, or using a serial trigger command (see [Trigger Commands](#) on page 194). You must be in a serial interface mode in order to use serial triggering. When in serial mode, the 8690i scans until a barcode has been read or until the deactivate command is sent. The 8690i 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 8690i's trigger when using serial commands to trigger the 8690i. Once the 8690i has timed out, you can activate the 8690i either by pressing the trigger or using a serial trigger command. After scanning the **Read Time-Out** barcode, set the time-out duration (from 0-300,000 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 30,000 ms.*



## Object Detection Mode

Object Detection Mode uses an infrared (IR) beam to detect when an object is in the device's field of view. When an object is detected, the scanner attempts to scan the barcode. 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. *Default = Object Detection - Long Range.*



## Object Detection Deactivation

If desired, you can turn off Object Detection with the press of a button. This maximizes battery life and prevents unintentional scans. Scan one of the timeouts below to set the length of time the user must press the right button in order to turn off the Object Detection feature. *Default = Off.*



AOSTIM0.

\* Off



AOSTIM10.

Quick Press



AOSTIM2000.

2 Second Press

## Object Detection Trigger Hold

As you move in and out of the range of objects, you may want to keep the Object Detection triggering on rather than reverting to triggered scanning. To set a 1 second trigger hold, scan the **1 Second Hold** barcode below. *Default = Off.*



TRGHTO0.

\* Off



TRGHTO1000.

1 Second Hold

# Poor Quality Codes

## Poor Quality 1D Codes

This setting improves the 8690i's ability to read damaged or badly printed linear barcodes. When **Poor Quality 1D Reading On** is scanned, poor quality linear barcode reading is improved, but the 8690i's snappiness is decreased, making it less aggressive when reading good quality barcodes. This setting does not affect 2D barcode 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 8690i'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 8690i's snappiness is decreased, making it less aggressive when reading good quality barcodes. This setting does not affect 1D barcode 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 barcode, scan the **Lights On** barcode, below. However, if you want to turn just the lights off, scan the **Lights Off** barcode. *Default = Lights On.*

**Note:** *This setting does not affect the aimer light. The aiming light can be set using [Aimer Mode](#) (page 65).*

**Note:** *Turning Off the Illumination Lights will reduce scanning performance.*



SCNLED1.  
\* Lights On



SCNLED0.  
Lights Off

# Aimer Delay

The aimer delay allows a delay time for the operator to aim the 8690i 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



SCNDLY0.  
\* Off (no delay)



## User-Specified Aimer Delay

If you want to set your own length for the duration of the delay, scan the barcode below, then set the time-out (from 0 - 4,000 ms) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253.



## Aimer Mode

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



## Centering

Use Centering to narrow the 8690i's field of view to make sure that it reads only those barcodes 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 64, for the most error-free operation in applications where multiple codes are spaced closely together. Using the Aimer Delay and Centering features, the 8690i can emulate the operation of older systems, such as linear laser barcode scanners.)

## Single Code Centering

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

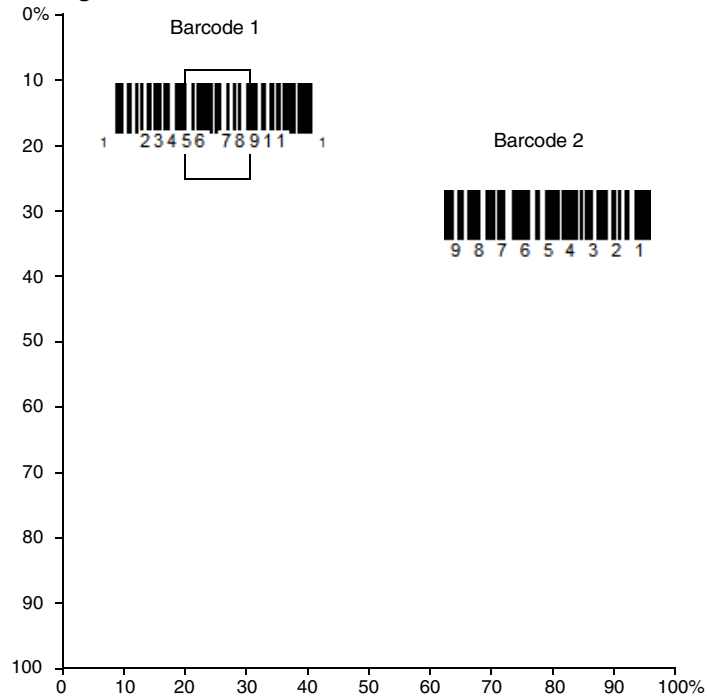


Single Code Centering

# Custom Centering Settings

Use the following settings to customize your centering window. If a barcode is not touched by a predefined window, it will not be decoded or output by the 8690i. If centering is turned on by scanning **Centering On**, the 8690i 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** barcodes.

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 Barcode 1 passes through the centering window, it will be read. Barcode 2 does not pass through the centering window, so it will not be read.



**Note:** A barcode 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 barcodes 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** barcode from the [Programming Chart](#) on page 253. Default Centering = 40% for Top and Left, 60% for Bottom and Right.





## Keyboard Wedge Modifiers

### ALT Mode

If your barcode contains special characters from the extended ASCII chart, for example, an e with an accent grave (è), you will use ALT Mode. (See [Lower ASCII Reference Table](#).)

**Note:** Scan the ALT mode barcode after scanning the appropriate Keyboard Country code.

If your keystrokes require the ALT key and 4 characters, scan the **4 Characters** barcode. The data is then output with the special character(s). *Default = Off.*



# Keyboard Modifiers

This modifies special keyboard features, such as CTRL+ ASCII codes and Turbo Mode.

**Control + X (Control + ASCII) Mode On:** The device sends key combinations for ASCII control characters for values 00-1F. Windows is the preferred mode. All keyboard country codes are supported. DOS mode is a legacy mode, and it does not support all keyboard country codes. New users should use the Windows mode. Refer to [ASCII Conversion Chart \(Code Page 1252\)](#) on page 242 for CTRL+ X Values.

**Windows Mode Prefix/Suffix Off:** The device sends key combinations for ASCII control characters for values 00-1F, but it does not translate prefix or suffix information.

*Default = Control + X Mode Off.*



KBDCAS2.

**Windows Mode Control + X  
Mode On**



KBDCAS1.

**DOS Mode Control + X Mode On**



KBDCAS0.

**\* Control + X Mode Off**



KBDCAS3.

**Windows Mode Prefix/Suffix**

# Preferred Symbology

The 8690i can be programmed to specify one symbology as a higher priority over other symbologies in situations where both barcode symbologies appear on the same label, but the lower priority symbology cannot be disabled.

For example, you may be using the 8690i 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 8690i ignores it for a set period of time (see [Preferred Symbology Time-out](#) on page 70) 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 8690i reads any barcode in its view (low priority or unspecified). If there is no barcode in the 8690i'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 barcode below to enable or disable Preferred Symbology. *Default = Preferred Symbology Off.*



## High Priority Symbology

To specify the high priority symbology, scan the **High Priority Symbology** barcode below. On the [Symbology Charts](#) on page 239, 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** barcode from the [Programming Chart](#) on page 253. *Default = None.*



## Low Priority Symbology

To specify the low priority symbology, scan the **Low Priority Symbology** barcode below. On the [Symbology Charts](#) on page 239, 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 253.

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.*



## 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 8690i searches for a high priority barcode after a low priority barcode has been encountered. Scan the barcode below, then set the delay (from 1-3,000 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 500 ms.*



Preferred Symbology Time-out

## Preferred Symbology Default

Scan the barcode 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 device to output data (when scanning more than one symbol) in whatever order your application requires, regardless of the order in which the barcodes are scanned. You can define up to 15 barcodes 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 253) to enter these options. You must hold the trigger while reading each barcode in the sequence.*

### To Add an Output Sequence

An output sequence is created using a string of serial commands that is sent to the device. This string is most easily sent to the device using the EZConfig software tool (see [EZConfig for Scanning Introduction](#) on page 189). You can also accomplish this by scanning alphanumeric barcodes (see the [Programming Chart](#), beginning on page 253).

1. If you are using barcodes to create your output sequence, scan the **Enter Sequence** symbol (see [Require Output Sequence](#), page 78).
2. **Code I.D.**  
On the [Symbology Charts](#) on page 239, 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 253.
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 barcodes to create your output sequence, scan the four digit data length from the [Programming Chart](#), beginning on page 253. (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 242, 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 barcodes to create your output sequence, use the [Programming Chart](#) (page 253) 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 barcodes, scan **Discard** ([page 253](#)) 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.
- SEQSAT** Define satisfactory subsets of full output sequence.
- SEQTIM** Timeout for sequence members when using SEQSAT.
- 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 barcodes, but you want the 8690i to output Code 39 first, Code 128 second, and PDF417 third.

Set up the sequence editor with the following command line:

<b>SEQBLK</b>	sequence editor start command
<b>62</b>	code identifier for Code 39
<b>9999</b>	code length that must match for Code 39, 9999 = all lengths
<b>43</b>	start character match for Code 39, 43h = "C"
<b>FF</b>	termination string for first code
<b>6A</b>	code identifier for Code 128
<b>9999</b>	code length that must match for Code 128, 9999 = all lengths
<b>54</b>	start character match for Code 128, 54h = "T"
<b>FF</b>	termination string for first code
<b>72</b>	code identifier for PDF417
<b>9999</b>	code length that must match for PDF417, 9999 = all lengths
<b>4D</b>	start character match for PDF417, 4Dh = "M"
<b>FF</b>	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 barcodes, but you want <> brackets and a carriage return and line feed to separate your output.



The sequence editor would use the same command line as shown in [Output Sequence Example](#) (page 71):

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

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

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

**3E** right bracket (>)

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

**SEQSUF99** separator for suffixes, 99 = all symbologies

**OD** carriage return

**OA** line feed

The whole command line would look like this:

**SEQBLK62999943FF6A999954FF7299994DFFSEQSEP993C3ESEQSUF990D  
A**

The data is output as:

**<CODE39SMPL>**

**<TSTMSGCODE128>**

**<MSGPDF417>**

## Enter Output Sequence

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



**Enter Output Sequence**

## Partial Sequence

If an output sequence operation is terminated before all your output sequence criteria are met, the barcode 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 barcodes, and you want the 8690i to output Code 39 first, Code 128 second, and PDF417 third, in brackets, as shown below, but the Code 39 barcode has been damaged and cannot be output.



You would use the same command line as shown in [Output Sequence Example 2 - Three Symbolologies with <> Separators](#) (page 73):

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

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

<b>SEQTTS1</b>	transmit partial sequence
<b>SEQISU99</b>	add partial sequence prefix, 99 = all symbolologies

<b>3E</b>	right bracket (>)
<b>50</b>	P
<b>41</b>	A
<b>52</b>	R
<b>54</b>	T
<b>49</b>	I
<b>41</b>	A
<b>4C</b>	L
<b>3C</b>	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

## Output Sequence Timeouts

You can set a timeout for every code in the output sequence defined by the SEQBLK command. The device applies the shortest timeout corresponding to any of the codes that have been read during the current trigger session. When the timeout expires, the device sends all codes that it has been read in the order they appear in the sequence defined by SEQBLK.

To specify the timeout, use the SEQTIM command followed by a list of timeouts in milliseconds. Each timeout is specified as a 4-decimal digit terminated by FF. The timeout value 9999 is special and indicates that the timeout for that code is “infinite”.

The number of timeouts specified should correspond to the number of codes in the sequence defined by SEQBLK. You can specify one additional timeout, which will apply to codes not matching any member of the sequence. This can be useful if Require Output Sequence is **On/Not Required**. If you do not specify an additional timeout for codes not in the defined sequence, the last timeout specified by SEQTIM will apply.

### Output Sequence Timeout Example

For example, if SEQBLK defines a 4-code sequence, you can specify timeouts of 5, 6, 7, and 8 seconds for codes 1-4 respectively using the command **SEQTIM5000FF6000FF7000FF8000FF**. Codes that are not part of the defined sequence would have an implied timeout of 8 seconds in this case (the final timeout in the list). To explicitly specify a timeout for such codes, you can include one more timeout at the end of the list. For example, to include a timeout of 1 second for non-sequence codes, use the command **SEQTIM5000FF6000FF7000FF8000FF1000FF**.

### Satisfactory Subset of Full Sequence

You can define one or more subsets of barcodes from the complete sequence specified by SEQBLK. When you scan all the codes from one of these subsets, the device will transmit all the codes it has read in the sequence. The device sends the codes in the order defined by SEQBLK.

**Note:** To use the satisfactory subset feature, you must supply a timeout for each code in the sequence using SEQTIM.

### Satisfactory Subset of Full Sequence Timeout Example

To specify a subset, list its members using the SEQSAT command and terminate each subset with FF. The members of each subset are specified as single hex digits corresponding to their index within the full sequence, 1 being the first. For example, to specify two subsets, the first consisting of the first and second code in the sequence and the second subset consisting of the second and third code, use the command **SEQSAT12FF23FF**.

To define a subset with an odd number of codes, insert a 0 before the final code index. For example, to define a 3-code subset consisting of the first, second, and third codes, use the command **SEQSAT1203FF**.

### Default Output Sequence

**Default Sequence** programs the 8690i 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 8690i does not transmit the output data to the host device. When it's **On/Not Required**, the 8690i attempts to get the output data to conform to an edited sequence but, if it cannot, the 8690i transmits all output data to the host device as is, or formatted according to the partial sequence output format (see [Partial Sequence](#) on page 74).

When the output sequence is **Off**, the barcode data is output to the host as the 8690i decodes it. *Default = Off.*

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



## Good Read Tone - Output Sequences

The 8690i may be programmed to either beep or click in response to a good read of each barcode 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.*



Good Read Beep - Each  
Code in Sequence



\* Good Read Click - Each  
Code in Sequence



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 8690i's trigger. If you press and hold the trigger, aiming the 8690i at a series of symbols, it reads unique symbols once, beeping and vibrating for each read. The 8690i attempts to find and decode new symbols as long as the trigger is pressed. When this programming selection is turned Off, the 8690i only reads the symbol closest to the aiming beam. *Default = Off.*



SHOTGN1.

**On**



SHOTGN0.

\* **Off**

## No Read

With No Read turned **On**, the 8690i notifies you if a code cannot be read. If using an EZConfig-Scanning Tool Scan Data Window (see page 189), 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 5-89). The hex code for the No Read symbol is **9C**.

# Video Reverse

Video Reverse is used to allow the 8690i to read barcodes that are inverted. The **Video Reverse Off** barcode below is an example of this type of barcode. Scan **Video Reverse Only** to read *only* inverted barcodes. Scan **Video Reverse and Standard Barcodes** to read both types of codes. *Default = Video Reverse Off.*

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

**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  
Barcodes



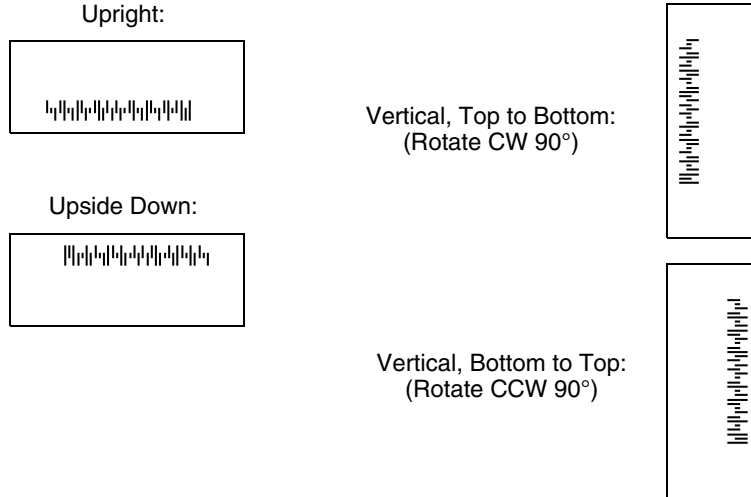
VIDREV0.

\* Video Reverse Off



# Working Orientation

Some barcodes are direction-sensitive. For example, KIX codes and OCR can misread when scanned sideways or upside down. Use the working orientation settings if your direction-sensitive codes are not usually presented upright to the 8690i. *Default = Upright.*

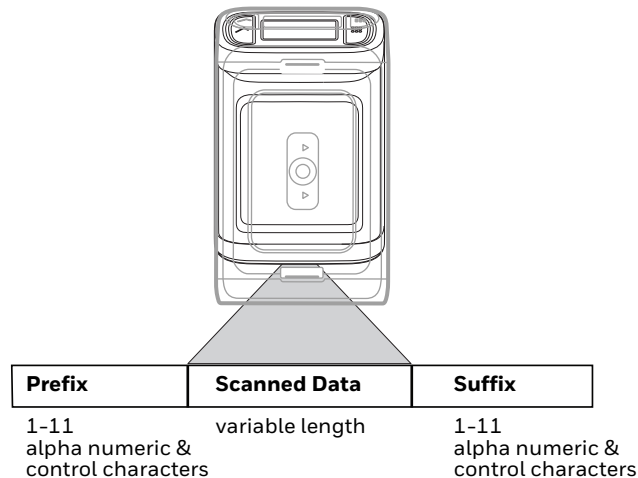




## Prefix/Suffix Overview

When a barcode is scanned, additional information is sent to the host computer along with the barcode data. This group of barcode 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:



## 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 242, 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 85](#)).
- Step 2. Determine the 2 digit Hex value from the Symbology Chart (included in the [Symbology Charts](#), beginning on page 239) 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 253, 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 253 to apply this suffix to all symbologies.
- Step 3. Scan **0, 9** from the [Programming Chart](#), beginning on page 253. This corresponds with the hex value for a horizontal tab, shown in the [ASCII Conversion Chart \(Code Page 1252\)](#), beginning on page 242.
- 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 239) 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 253, or scan **9, 9** for all symbologies.

Your change is automatically saved.

## Add a Carriage Return Suffix to All Symbologies

Scan the following barcode if you wish to add a carriage return suffix to all symbologies 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 barcode 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 242). 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

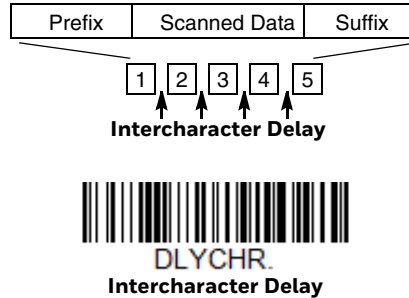
**Note:** You can also use a custom data format (see [Data Format](#), beginning on page 89) to translate these characters into a more meaningful output.

# 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** barcode below, then scan the number of 5ms delays, and the **Save** barcode from the [Programming Chart](#), beginning on page 253.



To remove this delay, scan the **Intercharacter Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode from the [Programming Chart](#), beginning on page 253.

**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** barcode below, then scan the number of 5ms delays, and the **Save** barcode from the [Programming Chart](#), beginning on page 253.

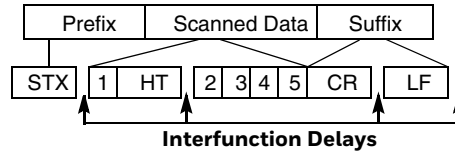
Next, scan the **Character to Trigger Delay** barcode, then the 2-digit hex value for a printable character to trigger the delay (see [Lower ASCII Reference Table](#), page 243.)



To remove this delay, scan the **Delay Length** barcode, and set the number of delays to **0**. Scan the **Save** barcode from the [Programming Chart](#), beginning on page 253.

## 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** barcode below, then scan the number of 5ms delays, and the **Save** barcode from the [Programming Chart](#), beginning on page 253.



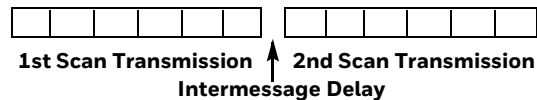
DLYFNC.

Interfunction Delay

To remove this delay, scan the **Interfunction Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode from the [Programming Chart](#), beginning on page 253.

## Intermessage Delay

An intermessage delay of up to 5000 milliseconds (in 5ms increments) may be placed between each scan transmission. Scan the **Intermessage Delay** barcode below, then scan the number of 5ms delays, and the **Save** barcode from the [Programming Chart](#), beginning on page 253.



DLYMSG.

Intermessage Delay

To remove this delay, scan the **Intermessage Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode from the [Programming Chart](#), beginning on page 253.



## Data Format Editor Introduction

You may use the Data Format Editor to change the 8690i's output. For example, you can use the Data Format Editor to insert characters at certain points in barcode 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 barcode, it is output automatically. However, when you create a format, you must use a "send" command (see [Send Commands](#) on page 92) within the format program to output data.

Multiple formats may be programmed into the 8690i. 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 barcode is read that fails the first data format, the next data format, if there is one, will be used on the barcode 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.



## Show Data Format

Scan the barcode below to show current data format settings.



## Add a Data Format

- Step 1. Scan the **Enter Data Format** symbol ([page 91](#)).
- 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 253. 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 107](#) for further information.)
- Step 3. **Terminal Type**  
Refer to [Terminal ID Table](#) (page 92) and locate the Terminal ID number for your PC. Scan three numeric barcodes from the [Programming Chart](#), beginning on page 253 to program the 8690i 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 239, 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 253.

If you wish to create a data format for all symbologies, with the exception of some specific symbologies, refer to B8 ([page 105](#)).

**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 253. For example, 50 characters is entered as **0050**.

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

Step 6. **Editor Commands**

Refer to [Data Format Editor Commands](#) (page 92). 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.



## 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 253. 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 239), and the barcode 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.





## 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 242 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 242 for decimal, hex and character codes.

### **F2 Example: Send a number of characters**



Send the first 10 characters from the barcode 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 barcode 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 242 for decimal, hex and character codes.

### **F3 Example: Send all characters up to a particular character**



Using the barcode 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 = B9nnns...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 (see [ASCII Conversion Chart \(Code Page 1252\)](#) on page 242) for decimal, hex and character codes.

### **B9 Example: Send all characters up to a defined string**



Using the barcode above, send all characters up to but not including “AB.”

Command string: **B90024142**

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 242 for decimal, hex and character codes.

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



Send all characters except for the last 8 from the barcode 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 \(Code Page 1252\)](#) on page 242 for decimal, hex and character codes.

### **B9 and BA Example: Look for the string “AB” and insert 2 asterisks (\*\*)**



Using the barcode 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 barcode’s symbology in the output message, without moving the cursor. Only symbologies with a Honeywell ID are included (see [Symbology Charts](#) on page 239). Refer to the [ASCII Conversion Chart \(Code Page 1252\)](#), beginning on page 242 for decimal, hex and character codes.

## **Insert barcode length**

**B4** Insert the barcode’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**



Send the symbology name and length before the barcode data from the barcode 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 barcode 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 249). 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 249.

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 keystroke 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**



Move the cursor forward 3 characters, then send the rest of the barcode data from the barcode 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 barcodes that begin with a 1



Search for barcodes that begin with a 1. If a barcode matches, move the cursor back to the beginning of the data and send 6 characters followed by a carriage return. Using the barcode 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 242 for decimal, hex and character codes.

**F8 Example: Send barcode data that starts after a particular character**



Search for the letter “D” in barcodes and send all the data that follows, including the “D.” Using the barcode 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 242 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, B0000454657374 searches forward for the first occurrence of the 4 character string “Test.” Refer to the [ASCII Conversion Chart \(Code Page 1252\)](#), beginning on page 242 for decimal, hex and character codes.

### **B0 Example: Send barcode data that starts after a string of characters**



Search for the letters “FGH” in barcodes and send all the data that follows, including “FGH.” Using the barcode 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, B1000454657374 searches backward for the first occurrence of the 4 character string “Test.” Refer to the [ASCII Conversion Chart \(Code Page 1252\)](#), beginning on page 242 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 242 for decimal, hex and character codes.

E6 Example: Remove zeroes at the beginning of barcode data



This example shows a barcode 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 character that is not zero, then sends all the data after, followed by a carriage return. Using the barcode 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 242 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 = FBnnxyy . .zz* where nn is a count of the number of suppressed characters in the list, and xyy . .zz is the list of characters to be suppressed.

### **FB Example: Remove spaces in barcode data**



This example shows a barcode that has spaces in the data. You may want to remove the spaces before sending the data. Using the barcode 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<sub>1</sub>xx<sub>2</sub>yy<sub>1</sub>yy<sub>2</sub>...zz<sub>1</sub>zz<sub>2</sub>* where nn is the total count of the number of characters in the list (characters to be replaced plus replacement characters); xx<sub>1</sub> defines characters to be replaced and xx<sub>2</sub> defines replacement characters, continuing through zz<sub>1</sub> and zz<sub>2</sub>.

### **E4 Example: Replace zeroes with CRs in barcode data**



If the barcode 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 barcode 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 242 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 242 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 barcode begins with a number**


If you want only data from barcodes 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 barcode 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 barcode 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 barcode begins with a letter**


If you want only data from barcodes 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 barcode 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 barcode is read:  the data is output as:

**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.

## Discard Data

**B8** Discards types of data. For example, you may want to discard Code 128 barcodes that begin with the letter A. In step 4 ([page 90](#)), select 6A (for Code 128), and in step 5, select 9999 (for all lengths). Enter FE41B8 to compare and discard Code 128 barcodes 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 105](#)) in order for the B8 command to work. If Data Format is On, but Not Required ([page 106](#)), barcode data that meets the B8 format is scanned and output as usual. Because the data format needs to be **On** and **Required** ([page 106](#)) for the B8 command, you must input data formats for all barcodes you wish to discard as well as all barcodes you wish to output. Other data format settings impact the B8 command. If Data Format Non-Match Error Tone is On ([page 106](#)), the 8690i 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 barcode data is output to the host as read, including prefixes and suffixes.



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 barcode is not transmitted. If you wish to process this type of barcode 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 barcode 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 barcode is encountered that doesn't match your required data format, the 8690i normally generates an error tone. However, you may want to continue scanning barcodes without hearing the error tone. If you scan the **Data Format Non-Match Error Tone Off** barcode, 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 barcode is found, scan the **Data Format Non-Match Error Tone On** barcode. *Default = Data Format Non-Match Error Tone On.*



DFMDEC0.

\* Data Format Non-Match Error  
Tone On



## Primary/Alternate Data Formats

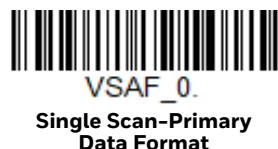
You can save up to four data formats, and switch between these formats. Your primary data format is saved under 0. Your other three formats are saved under **1**, **2**, and **3**. To set your device to use one of these formats, scan one of the barcodes below.



## Single Scan Data Format Change

You can also switch between data formats for a single scan. The next barcode 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** barcode below. The next barcode that is scanned uses Data Format 1, then reverts back to Data Format 3.





VSAF\_2.

Single Scan-Data Format 2



VSAF\_1.

Single Scan-Data Format 1



VSAF\_3.

Single Scan-Data Format 3

## SYMBOLOLOGIES

This programming section contains the following menu selections. Refer to [Chapter 9](#) for settings and defaults.

- All Symbolologies
- 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** barcode for each symbology.



## Message Length Description

You are able to set the valid reading length of some of the barcode symbologies. You may wish to set the same value for minimum and maximum length to force the 8690i to read fixed length barcode data. This helps reduce the chances of a misread.

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

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

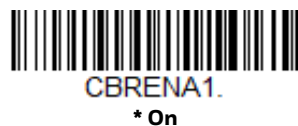
For a value other than the minimum and maximum message length defaults, scan the barcodes included in the explanation of the symbology, then scan the digit value of the message length and **Save** barcodes from the [Programming Chart](#), beginning on page 253. The minimum and maximum lengths and the defaults are included with the respective symbologies.

## Codabar

<Default All Codabar Settings>



## Codabar On/Off





## Codabar Start / Stop Characters

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



## Codabar Check Character

Codabar check characters are created using different “modulos.” You can program the 8690i to read only Codabar barcodes with Modulo 16 check characters. *Default = No Check Character.*

**No Check Character** indicates that the 8690i reads and transmits barcode data with or without a check character.

When Check Character is set to **Validate and Transmit**, the 8690i only reads Codabar barcodes 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 8690i only reads Codabar barcodes printed *with* a check character, but does not transmit the check character with the scanned data.



## Codabar Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the 8690i 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.



Select **Require** to prevent the 8690i from decoding a single “D” Codabar symbol without its companion. This selection has no effect on Codabar symbols without Stop/Start D characters. *Default = Off.*



## Codabar Redundancy

If you are encountering errors when reading Codabar barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode 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 barcode. To adjust the redundancy, scan the Codabar Redundancy barcode below, then scan a redundancy count between 0 and 10 on the [Programming Chart](#), beginning on page 253. Then scan the **Save** barcode. *Default = 0.*





## Codabar Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 2-60. Minimum Default = 4, Maximum Default = 60.



## Code 39

< Default All Code 39 Settings >



## Code 39 On/Off



If you are reading Code 39 barcodes, Codablock A should remain disabled. If you are enabling Codablock A (see [Codablock A](#) on page 150), you should disable Code 39.

## Code 39 Start/Stop Characters

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





## Code 39 Check Character

**No Check Character** indicates that the 8690i reads and transmits barcode data with or without a check character.

When Check Character is set to **Validate, but Don't Transmit**, the unit only reads Code 39 barcodes 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 8690i only reads Code 39 barcodes printed with a check character, and transmits this character at the end of the scanned data. *Default = No Check Character.*



## Code 39 Redundancy

If you are encountering errors when reading Code 39 barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode 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 barcode. To adjust the redundancy, scan the **Code 39 Redundancy** barcode below, then scan a redundancy count between 0 and 10 on the [Programming Chart](#), beginning on page 253. Then scan the **Save** barcode. *Default = 0.*



## Code 39 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 0-48. Minimum Default = 0, Maximum Default = 48.



## Code 39 Append

This function allows the 8690i to append the data from several Code 39 barcodes together before transmitting them to the host computer. When the 8690i encounters a Code 39 barcode with the append trigger character(s), it buffers Code 39 barcodes until it reads a Code 39 barcode that does not have the append trigger. The data is then transmitted in the order in which the barcodes were read (FIFO). *Default = 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 149](#)) must be turned off while scanning Code 32 Pharmaceutical codes.



# Full ASCII

If Full ASCII Code 39 decoding is enabled, certain character pairs within the barcode 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.



## 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646](#)

Character Replacements on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. The data characters should then appear properly.



## Interleaved 2 of 5

< Default All Interleaved 2 of 5 Settings >



## Interleaved 2 of 5 On/Off



## Check Digit

**No Check Digit** indicates that the 8690i reads and transmits barcode 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 barcodes 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 8690i only reads Interleaved 2 of 5 barcodes printed with a check digit, and transmits this digit at the end of the scanned data. *Default = No Check Digit.*





I25CK22.

**Validate and Transmit**

## Interleaved 2 of 5 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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 barcodes below to turn FEBRABAN Boletto 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 >



## NEC 2 of 5 On/Off



## Check Digit

**No Check Digit** indicates that the 8690i reads and transmits barcode 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 barcodes 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 8690i only reads NEC 2 of 5 barcodes printed with a check digit, and transmits this digit at the end of the scanned data. *Default = No Check Digit.*



## NEC 2 of 5 Message Length

Scan the barcodebarcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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

< Default All Code 93 Settings >



C93DFT.

## Code 93 On/Off



C93ENA1.  
\* On



C93ENA0.  
Off

## Code 93 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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 8690i to append the data from several Code 93 barcodes together before transmitting them to the host computer. When this function is enabled, the 8690i stores those Code 93 barcodes that start with a space (excluding the start and stop symbols), and does not immediately transmit the data. The 8690i stores the data in the order in which the barcodes are read, deleting the first space from each. The 8690i transmits the appended data when it reads a Code 93 barcode 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646 Character Replacements](#) on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. 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 barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.



R25MIN.

**Minimum Message Length**



R25MAX.

**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



## Straight 2 of 5 IATA Redundancy

If you are encountering errors when reading Straight 2 of 5 IATA barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode 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 barcode. To adjust the redundancy, scan the Straight 2 of 5 IATA Redundancy barcode below, then scan a redundancy count between 0 and 10 on the [Programming Chart](#), beginning on page 253. Then scan the **Save** barcode. *Default = 0.*



## Straight 2 of 5 IATA Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.





## Matrix 2 of 5

<Default All Matrix 2 of 5 Settings>



## Matrix 2 of 5 On/Off



## Matrix 2 of 5 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.



# Code 11

<Default All Code 11 Settings>



## Code 11 On/Off



## Check Digits Required

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



## Code 11 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.



# Code 128

<Default All Code 128 Settings>



## Code 128 On/Off



If you are reading Code 128 barcodes, Codablock F should remain disabled. If you are enabling Codablock F (see [Codablock F](#) on page 151), 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 recommendation 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 barcodes on a blood product label. Use the barcodes below to turn concatenation on or off. *Default =Off.*



## Code 128 Redundancy

If you are encountering errors when reading Code 128 barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode 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 barcode. To adjust the redundancy, scan the Code 128 Redundancy barcode below, then scan a redundancy count between 0 and 10 on the [Programming Chart](#), beginning on page 253. Then scan the **Save** barcode. *Default = 0.*



128VOT.

**Code 128 Redundancy**

## Code 128 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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 8690i to append the data from several Code 128 barcodes together before transmitting them to the host computer. When the 8690i encounters a Code 128 barcode with the append trigger character(s), it buffers Code 128 barcodes until it reads a Code 128 barcode that does not have the append trigger. The data is then transmitted in the order in which the barcodes 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646](#)

Character Replacements on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. The data characters should then appear properly.



## GS1-128

<Default All GS1-128 Settings>



## GS1-128 On/Off



## GS1-128 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 1, Maximum Default = 80.





# Telepen

<Default All Telepen Settings>



## Telepen On/Off



## Telepen Output

Using **AIM Telepen Output**, the 8690i 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 8690i 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.*



## Telepen Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-60. Minimum Default = 1, Maximum Default = 60.



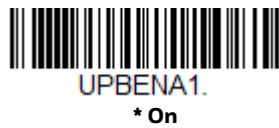


## UPC-A

<Default All UPC-A Settings>



## UPC-A On/Off



**Note:** To convert UPC-A barcodes to EAN-13, see [Convert UPC-A to EAN-13](#) on page 137.

## 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.*



## 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.*



## 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.*



## UPC-A Addenda Required

When **Required** is scanned, the 8690i only reads UPC-A barcodes that have addenda. You must then turn on a 2 or 5 digit addenda listed on [page 131](#). *Default = Not Required.*





## Addenda Timeout

You can set a time during which the 8690i 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 barcode below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 500.*

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



## UPC-A Addenda Separator

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



## 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 8690i treats Coupon Codes and Extended Coupon Codes as single barcodes.

If you scan the **Allow Concatenation** code, when the 8690i 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 8690i 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.*



## Addenda Timeout

You can set a time during which the 8690i 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 barcode below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 500.*

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



## 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.*



# UPC-E0

<Default All UPC-E Settings>



## UPC-E0 On/Off

Most U.P.C. barcodes 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 136). *Default = On.*



## UPC-E0 Expand

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



## UPC-E0 Addenda Required

When **Required** is scanned, the 8690i only reads UPC-E barcodes that have addenda. *Default = Not Required.*



## Addenda Timeout

You can set a time during which the 8690i 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 barcode below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *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 barcode 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.*



UPEXS1.

\* On



UPEXS0.

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. barcodes lead with the 0 number system. For these codes, use [UPC-E0](#) (page 134). 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 barcodes 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. *Default = Do not Convert 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



## 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.*



## EAN/JAN-13 Addenda Required

When **Required** is scanned, the 8690i only reads EAN/JAN-13 barcodes that have addenda. *Default = Not Required.*



## EAN-13 Beginning with 290 Addenda Required

This setting programs the 8690i to require a 5 digit addenda only on EAN-13 barcodes that begin with "290." The following settings can be programmed:

**Require 5 Digit Addenda:** All EAN-13 barcodes that begin with "290" must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes 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 378/379 Addenda Required

This setting programs the 8690i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 barcodes that begin with a “378” or “379.” The following settings can be programmed:

**Require Addenda:** All EAN-13 barcodes 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 barcode with the addenda is then transmitted as a single, concatenated barcode. If the required addenda is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes 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 414/419 Addenda Required

This setting programs the 8690i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 barcodes that begin with a “414” or “419.” The following settings can be programmed:

**Require Addenda:** All EAN-13 barcodes 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 barcode with the addenda is then transmitted as a single, concatenated barcode. If the required addenda is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes 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



ARQ4143.

Require 2 or 5 Digit Addenda

## EAN-13 Beginning with 434/439 Addenda Required

This setting programs the 8690i to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 barcodes that begin with a “434” or “439.” The following settings can be programmed:

**Require Addenda:** All EAN-13 barcodes 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 barcode with the addenda is then transmitted as a single, concatenated barcode. If the required addenda is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes 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 8690i to require a 2 digit addenda only on EAN-13 barcodes that begin with "977." The following settings can be programmed:

**Require 2 Digit Addenda:** All EAN-13 barcodes that begin with "977" must have a 2 digit addendum. The EAN-13 barcode with the 2 digit addendum is then transmitted as a single, concatenated barcode. If a 2 digit addendum is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes 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 8690i to require a 5 digit addenda only on EAN-13 barcodes that begin with “978.” The following settings can be programmed:

**Require 5 Digit Addenda:** All EAN-13 barcodes that begin with “978” must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for [EAN/JAN-13 Addenda Required](#).

*Default = Don’t Require 5 Digit Addenda.*



ARQ9780.

\* Don’t Require 5 Digit Addenda



ARQ9781.

Require 5 Digit Addenda

## EAN-13 Beginning with 979 Addenda Required

These settings program the 8690i to require a 5 digit addenda only on EAN-13 barcodes that begin with “979.” The following settings can be programmed:

**Require 5 Digit Addenda:** All EAN-13 barcodes that begin with “979” must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the [Addenda Timeout](#) period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for [EAN/JAN-13 Addenda Required](#).

*Default = Don’t Require 5 Digit Addenda.*



ARQ9790.

\* Don’t Require 5 Digit Addenda



ARQ9791.

Require 5 Digit Addenda

## Addenda Timeout

You can set a time during which the 8690i 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 barcode below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *Default = 500.*

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



DLYADD.

Addenda Timeout

## EAN/JAN-13 Addenda Separator

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



E13ADS1.

\* On



E13ADS0.

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 132).*

## 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>



## EAN/JAN-8 On/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.*



## 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.*







EA8AD51.

5 Digit Addenda On



EA8AD50.

\* 5 Digit Addenda Off

## EAN/JAN-8 Addenda Required

When **Required** is scanned, the 8690i only reads EAN/JAN-8 barcodes that have addenda. *Default = Not Required.*



EA8ARQ1.

Required



EA8ARQ0.

\* Not Required

## Addenda Timeout

You can set a time during which the 8690i 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 barcode below, then setting the timeout (from 0-120 milliseconds) by scanning digits, then the **Save** barcode from the [Programming Chart](#) on page 253. *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 barcode and the data from the addenda. When turned **Off**, there is no space. *Default = On.*



EA8ADS1.

\* On



## MSI

<Default All MSI Settings>



## MSI On/Off



## MSI Check Character

Different types of check characters are used with MSI barcodes. You can program the 8690i to read MSI barcodes 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 8690i only reads MSI barcodes printed with the specified type check character(s), and transmits 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 barcodes printed with the specified type check character(s), but does not transmit the check character(s) with the scanned data.





MSICLK2.

Validate 2 Type 10 Characters,  
but Don't Transmit



MSICLK3.

Validate 2 Type 10 Characters  
and Transmit



MSICLK4.

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



MSICLK5.

Validate Type 11 then  
Type 10 Character and Transmit



MSICLK6.

Disable MSI Check Characters

## MSI Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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 >



## GS1 DataBar Omnidirectional On/Off



## GS1 DataBar Limited

< Default All GS1 DataBar Limited Settings >



## GS1 DataBar Limited On/Off



# GS1 DataBar Expanded

< Default All GS1 DataBar Expanded Settings >



## GS1 DataBar Expanded On/Off



## GS1 DataBar Expanded Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 4-74. Minimum Default = 4, Maximum Default = 74.



## Trioptic Code

**Note:** If you are going to scan Code 32 Pharmaceutical codes ([page 115](#)), Trioptic Code must be off.

Trioptic Code is used for labeling magnetic storage media.

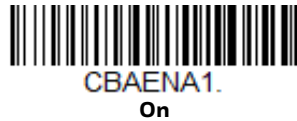


# Codablock A

<Default All Codablock A Settings>



## Codablock A On/Off



If you are reading Code 39 barcodes, Codablock A should remain disabled. If you are enabling Codablock A, you should disable Code 39 (see [Code 39](#) on page 113).

## Codablock A Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-600. Minimum Default = 1, Maximum Default = 600.



# Codablock F

<Default All Codablock F Settings>



## Codablock F On/Off



If you are reading Code 128 barcodes, Codablock F should remain disabled. If you are enabling Codablock F, you should disable Code 128 (see [Code 128](#) on page 126).

## Codablock F Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-2048. Minimum Default = 1, Maximum Default = 2048.



## Label Code

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





# PDF417

< Default All PDF417 Settings >



## PDF417 On/Off



## PDF417 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-2750. Minimum Default = 1, Maximum Default = 2750.





# MacroPDF417

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



# MicroPDF417

< Default All MicroPDF417 Settings >



# MicroPDF417 On/Off



# MicroPDF417 Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-366. Minimum Default = 1, Maximum Default = 366.



# 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.*



## UPC/EAN Version

Scan the **UPC/EAN Version On** barcode 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.*



**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 133) for further information.*

## GS1 Composite Code Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.



# GS1 Emulation

The 8690i 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.)

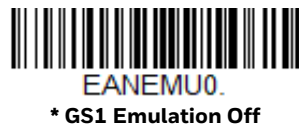
If **GS1-128 Emulation** is scanned, all retail codes (U.P.C., UPC-E, EAN8, EAN13) are expanded out to 16 digits. If the **AIM ID** is enabled, the value will be the GS1-128 AIM ID, ]C1 (see [Symbology Charts](#) on page 239).

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 239).

If **GS1 Code Expansion Off** is scanned, retail code expansion is disabled, and UPC-E expansion is controlled by the [UPC-E0 Expand](#) (page 134) setting. If the AIM ID is enabled, the value will be the GS1-128 AIM ID, ]C1 (see [Symbology Charts](#) on page 239).

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

*Default = 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 barcode 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.*



## QR Code

< Default All QR Code Settings >



## QR Code On/Off

This selection applies to both QR Code and Micro QR Code. *Default = On.*



## QR Code Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-7089. Minimum Default = 1, Maximum Default = 7089.





## QR Code Append

This function allows the 8690i to append the data from several QR Code barcodes together before transmitting them to the host computer. When the 8690i encounters an QR Code barcode with the append trigger character(s), it buffers the number of QR Code barcodes determined by information encoded in those barcodes. Once the proper number of codes is reached, the data is output in the order specified in the barcodes. *Default = On.*



## 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646 Character Replacements](#) on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. The data characters should then appear properly.



# DotCode

< Default All DotCode Settings >



## DotCode On/Off



## Poor Quality DotCodes

This setting improves the 8690i's ability to read damaged or badly printed DotCodes. *Default = Poor Quality DotCodes Off.*



## DotCode Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-2400. Minimum Default = 1, Maximum Default = 2400.



# Data Matrix

< Default All Data Matrix Settings >



## Data Matrix On/Off



## Direct Part Marking Decoding

If you are having trouble reading Direct Part Marking (DPM) barcodes, scan **Dotpeen DPM Decoding** for Dotpeen codes or scan **Reflective (Etched) DPM Decoding** for reflective (etched) codes. Default = Disable DPM Decoding.



# Data Matrix Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-3116. Minimum Default = 1, Maximum Default = 3116.



# 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646 Character Replacements](#) on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. The data characters should then appear properly.



# MaxiCode

< Default All MaxiCode Settings >



# MaxiCode On/Off





## MaxiCode Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.



## Aztec Code

< Default All Aztec Code Settings >



## Aztec Code On/Off



## Aztec Code Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 1-3832. Minimum Default = 1, Maximum Default = 3832.



## Aztec Append

This function allows the 8690i to append the data from several Aztec barcodes together before transmitting them to the host computer. When the 8690i encounters an Aztec barcode with the append trigger character(s), it buffers the number of Aztec barcodes determined by information encoded in those barcodes. Once the proper number of codes is reached, the data is output in the order specified in the barcodes. *Default = On.*



## 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 barcode 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 barcode below, select the code page with which the barcodes were created (see [ISO 2022/ISO 646 Character Replacements](#) on page 246), and scan the value and the **Save** barcode from the [Programming Chart](#), beginning on page 253. The data characters should then appear properly.

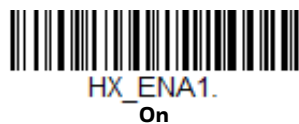


## Chinese Sensible (Han Xin) Code

< Default All Han Xin Settings >



## Han Xin Code On/Off





HX\_ENA0.

\* Off

## Han Xin Code Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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 Barcodebarcode On.*



POSTAL0.

2D Postal Codes Off

## Single 2D Postal Codes:



POSTAL1.

Australian Post On



POSTAL7.

British Post On



POSTAL30.

Canadian Post On



**POSTAL3.**  
Japanese Post On



**POSTAL5.**  
Planet Code On

Also see [Planet Code Check Digit](#), page 166.



**POSTAL6.**  
Postnet On

Also see [Postnet Check Digit](#), page 167.



**POSTAL2.**  
InfoMail On



**POSTAL10.**  
\* Intelligent Mail Barcode On



**POSTAL4.**  
KIX Post On



**POSTAL9.**  
Postal-4i On



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

## Combination 2D Postal Codes:



**POSTAL8.**  
InfoMail and British Post On



**POSTAL20.**  
Intelligent Mail Barcode and Postnet with B and B' Fields On



**POSTAL14.**  
Postnet and  
Postal-4i On



**POSTAL17.**  
Postal-4i and  
Intelligent Mail Barcode On



**POSTAL12.**  
Planet Code and  
Postnet On



**POSTAL13.**  
Planet Code and  
Postal-4i On



**POSTAL21.**  
Planet Code,  
Postnet, and  
Postal-4i On



**POSTAL16.**  
Postnet and  
Intelligent Mail Barcode On



**POSTAL19.**  
Postal-4i and  
Postnet with B and B' Fields On



**POSTAL18.**  
Planet Code and  
Postnet with B and B' Fields On



**POSTAL15.**  
Planet Code and  
Intelligent Mail Barcode



**POSTAL22.**  
Planet Code,  
Postnet, and  
Intelligent Mail Barcode On



**POSTAL23.**  
Planet Code,  
Postal-4i, and  
Intelligent Mail Barcode On



**POSTAL24.**  
Postnet,  
Postal-4i, and  
Intelligent Mail Barcode On



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



**POSTAL26.**  
Planet Code,  
Intelligent Mail Barcode, and  
Postnet with B and B' Fields On



**POSTAL27.**  
Postal-4i,  
Intelligent Mail Barcode, and  
Postnet with B and B' Fields On



**POSTAL28.**  
Planet Code,  
Postal-4i,  
Intelligent Mail Barcode, and  
Postnet On



**POSTAL29.**  
Planet Code,  
Postal-4i,  
Intelligent Mail Barcode, 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



## 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.*



## 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.





AUSINT3.

Combination C and N Tables

## 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 barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) 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

<Default All Korea Post Settings>



## Korea Post



## Korea Post Message Length

Scan the barcodes below to change the message length. Refer to [Message Length Description](#) (page 110) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.



## Korea Post Check Digit

This selection allows you to specify whether the check digit should be transmitted or not. *Default = Don't Transmit.*





The 8690i is like a digital camera in the way it captures, manipulates, and transfers images. The following commands allow you to alter the way the 8690i performs these functions.

## Single-Use Basis

Imaging Commands with their modifiers send instructions to the 8690i on a single-use basis, and take effect for a single image capture. Once that capture is complete, the 8690i 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 8690i.

## 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 **IMG SNP1P1T**.

**Note:** *After processing an image capture command (IMG SNP), you must follow it with an IMG SHP 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 IMG SNP1P1T;IMG SHP.

The imaging commands are:

[Image Snap - IMG SNP](#) (page 172)

[Image Ship - IMG SHP](#) (page 175)

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 8690i from the image/object. To achieve a high quality image, it is recommended that you position your 8690i 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 8690i, 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 (OL) is preferred for taking pictures of color documents, such as ID cards. LED State is not available when using Decoding Style (OP).

- 0L LEDs off (*default*)
- 1L LEDs on

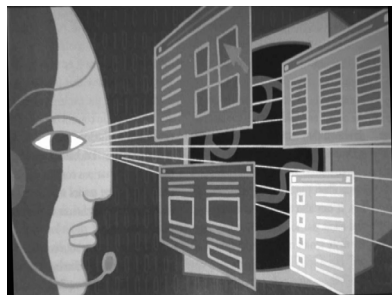
## E - Exposure

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 8690i 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 8690i 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%:

A grayscale image of a text block where the text is almost entirely black, indicating high contrast and low light levels.

#### Target Set Point Percentage at 50%:

A grayscale image of a text block with a balanced distribution of light and dark pixels, representing the default setting.

#### Target Set Point Percentage at 40%:

A grayscale image of a text block where the text is mostly white with some dark pixels, indicating low contrast and high light levels.

## Step 2 - Ship a Picture Using IMGSHIP

### Image Ship - IMGSHIP

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 IMGSHIP 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 IMGSHIP command.

**Example:** You can use the following command to snap and ship a bitmap image with gamma correction and document image filtering: `IMGSNP;IMGSHIP8F75K26U`

# IMGSHHP Modifiers

## A - Infinity Filter

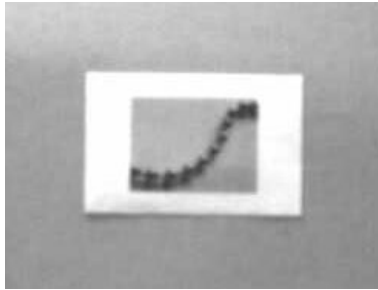
Enhances pictures taken from very long distances (greater than 10 feet or 3m). The Infinity Filter should not be used with [IMGSNP Modifiers](#) (page 172).

0A Infinity filter off (*default*)

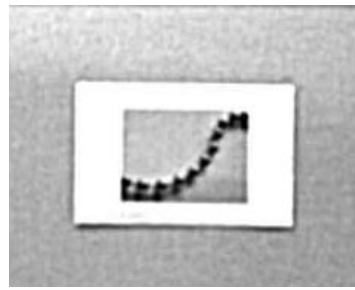
1A Infinity filter on

**Example:**

**Infinity Filter off (0A)**  
from approximately 12 feet  
(3.66m) away:



**Infinity 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

*ne* 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.

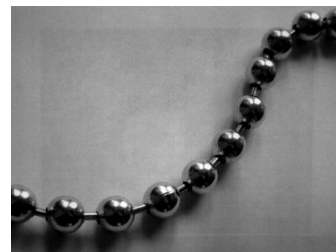
- 0H No stretch (*default*)
- 1H Histogram stretch

**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)

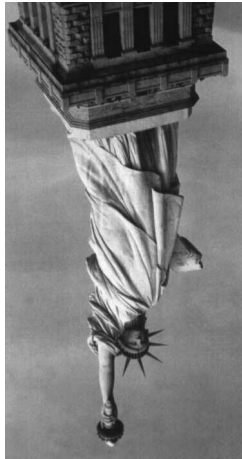
1iy Invert around the Y axis (flips picture left to right)

**Example:**

**Image not inverted:**



**Image with Invert Image set to 1ix:**



**Image with Invert Image set to 1iy:**



## IF- Noise Reduction

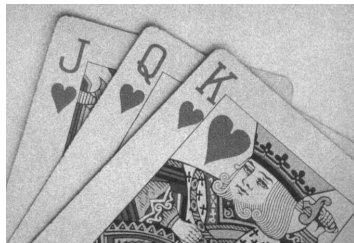
Used to reduce the salt and pepper noise in an image.

0if No salt and pepper noise reduction (default)

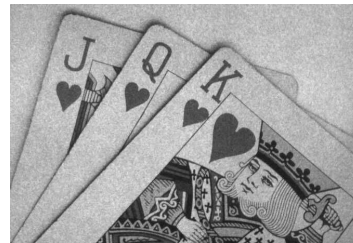
1if Salt and pepper noise reduction

**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)

- nJ 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
- nK 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.

- nL The left edge of the shipped image corresponds to column  $n$  of the image in memory. Range: 000 - 843. (*Default = 0*)
- nR The right edge of the shipped image corresponds to column  $n - 1$  of the image in memory. Range: 000 - 843. (*Default = all columns*)
- nT The top edge of the shipped image corresponds to row  $n$  of the image in memory. Range: 000 - 639. (*Default = 0*)

$nB$  The bottom edge of the shipped image corresponds to row  $n - 1$  of the image in memory. Range: 000 - 639. (Default = all rows)

**Example:**

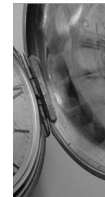
**Uncropped Image:**



**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.

$nM$  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 certain 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:**



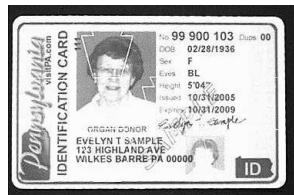
## U - Document Image Filter

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 184](#)). This filter also works well when shipping pure black and white images (1 bit per pixel). The optimal setting is 26U.

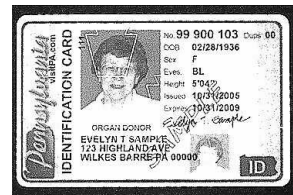
- 0U Document image filter off (*default*)
- 26U Apply document image filter for typical document image
- nU Apply document image filter using grayscale threshold n. Use lower numbers when the image contrast is lower. 1U will have a similar effect to setting [E - Edge Sharpen](#) (page 177) to 22e. Range: 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

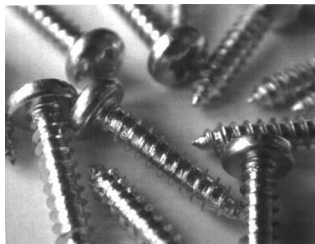
A histogram gives a quick picture of the tonal range of an image, or key type. A low-key image has detail concentrated in the shadows; a high-key image has detail concentrated in the highlights; and an average-key image has detail concentrated in the midtones. This modifier ships the histogram for an 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 barcode. *Default = Native Resolution.*







IMGVGA0.

\* Native Resolution

## RF Default Imaging Device

The 8690i supports imaging command processing (IMGSHP, IMGSNP) so that EZConfig for Scanning (see page [189](#)) and other applications are able to perform imaging functions as if they were communicating directly with the 8690i. To accomplish this, the 8690i uses a menu command called RF\_DID (RF Default Imaging Device). RF\_DID is the name of the 8690i (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 8690i. Change this setting to RF\_DID*device\_name* to ensure that they are sent to a particular 8690i. Refer to [Scanner Report](#) on page 31 to generate a report containing the port, 8690i name, and address for each 8690i. Refer to [Device Name](#) on page 40 set a unique name for each 8690i.



## 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 239 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 barcode below to output the current software revision, unit serial number, and other product information for the 8690i.



REVINF.

Show Software Revision

## Test Menu

When you scan the **Test Menu On** code, then scan a programming code in this manual, the 8690i 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 8690i operation.*



## TotalFreedom

TotalFreedom is an open system architecture that makes it possible for you create applications that reside on your 8690i. Decoding apps and Data Formatting apps can be created using TotalFreedom. For further information about TotalFreedom, go to our website at [sps.honeywell.com](http://sps.honeywell.com).

## Application Plug-Ins (Apps)

Any apps that you are using can be turned off or on by scanning the following barcodes. 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** barcode below. You can also scan the **List Apps** barcode to output a list of all your apps.



**Note:** You must reset your device in order for the apps setting to take effect.

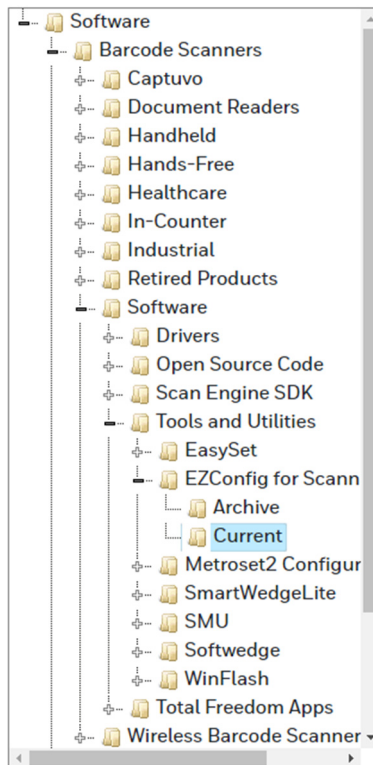
# EZConfig for Scanning Introduction

EZConfig for Scanning provides a wide range of PC-based programming functions that can be performed on the device connected to your PC. EZConfig for Scanning allows you to download upgrades to the device's firmware, change programmed parameters, and create and print programming barcodes. Using EZConfig for Scanning, you can even save/open the programming parameters. This saved file can be e-mailed or, if required, you can create a single barcode that contains all the customized programming parameters and mail or fax that barcode to any location. Users in other locations can scan the barcode to load in the customized programming.

## Configure with EZConfig for Scanning

Use the EZConfig for Scanning tool to configure your device online:

1. Access the Honeywell Technical Support Downloads Portal at [honeywell.com/PSSsoftware-downloads](http://honeywell.com/PSSsoftware-downloads).
2. Go to **Software > Barcode Scanners > Software > Tools and Utilities > EZConfig for Scanning > Current**.



3. Download the **Setup** version of EZConfig for Scanning.
4. Open EZConfig to configure your device.

# Reset the Factory Defaults



**Caution:** *This selection erases all your settings and resets the 8690i to the original factory defaults. It also disables all plugins.*

If you aren't sure what programming options are in your 8690i, or you've changed some options and want to restore the 8690i to factory default settings, first scan the **Remove Custom Defaults** barcode, then scan **Activate Defaults**. This resets the 8690i to the factory default settings.



DEFOVR.

**Remove Custom Defaults**



DEFAULT.

**Activate Defaults**

**Note:** *The 8690i resets and becomes unlinked from the host after using the Defaults commands. See [Auto Reconnect Mode](#) on page 28 to relink the 8690i.*

The [Menu Commands](#), beginning on page 195 list the factory default settings for each of the commands (indicated by an asterisk (\*) on the programming pages).

# SERIAL PROGRAMMING COMMANDS

The serial programming commands can be used in place of the programming barcodes. Both the serial commands and the programming barcodes program the 8690i. For complete descriptions and examples of each serial programming command, refer to the corresponding programming barcode 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:

<i>parameter</i>	A label representing the actual value you should send as part of a command.
[ <i>option</i> ]	An optional part of a command.
{Data}	Alternatives in a command.
<b>bold</b>	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 subset 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 8690i with serial trigger commands. First, the 8690i must be put in Manual Trigger Mode by scanning a Manual Trigger Mode barcode ([page 60](#)), or by sending a serial menu command for triggering ([page 61](#)). Once the 8690i 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 8690i scans until a barcode has been read, until the deactivate command is sent, or until the serial time-out has been reached (see "Read Time-Out" on page 3-61 for a description, and the serial command on [page 200](#)).

## Reset the Custom Defaults

If you want the custom default settings restored to your 8690i, scan the **Activate Custom Defaults** barcode below. This resets the 8690i to the custom default settings. If there are no custom defaults, it resets the 8690i to the factory default settings. Any settings that have not been specified through the custom defaults are defaulted to the factory default settings.



DEFAULT.

**Activate Custom Defaults**

**Note:** *This barcode also causes both the 8690i 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
<b>Get Started</b>			
Screen Display Settings			
Setting/Serial Command:	*Display Off	GUIINFO	<a href="#">11</a>
	Display Wi-Fi IP Address	GUIINF1	<a href="#">11</a>
	Display Firmware Version	GUIINF2	<a href="#">11</a>
	Display Wi-Fi MAC Address	GUIINF3	<a href="#">11</a>
	Display Bluetooth MAC Address	GUIINF4	<a href="#">11</a>
	*Icon Bar Off	GUIICNO	<a href="#">11</a>
	Icon Bar On	GUIICN1	<a href="#">11</a>
Pair the 8690i with Bluetooth Devices			
Pair with a PC or Laptop Bluetooth Serial Port	Host Reconnect Mode	PAPSPP;BT_DNG1	<a href="#">12</a>
Pair with a PC or Laptop Bluetooth HID Keyboard Mode	* Bluetooth HID Keyboard Connect	PAPBTH	<a href="#">12</a>
	Bluetooth HID Japanese Keyboard Connect	PAPJKB	<a href="#">12</a>
Pair with Bluetooth Low Energy (BLE) Devices	HID BLE Connect	PAPLEH	<a href="#">13</a>
	Serial BLE Connect	PAPBLE	<a href="#">13</a>
NFC Mode (Tap and Pair) for Android™ Devices	*NFC Off	BT_NFC0	<a href="#">14</a>
	NFC On	BT_NFC1	<a href="#">13</a>
NFC Mode (Tap and Pair) for Android™ Devices (Continued)	Bluetooth Serial Port Profile Connect	BT_TRM0,DNG4.	<a href="#">14</a>
	Bluetooth HID Keyboard Connect	PAPBTH.	<a href="#">13</a>
Pair with an Android, Apple or Windows Mobile Device: HID Keyboard Mode	Bluetooth HID Keyboard Connect	PAPBTH	<a href="#">14</a>
	Bluetooth HID Japanese Keyboard Connect	PAPJKB	<a href="#">14</a>
Enter a Bluetooth PIN	Bluetooth PIN Code	BT_PIN#	<a href="#">15</a>
Pair with a Honeywell Vehicle Mount or Dolphin CT40 or CT60 Mobile Computer	Bluetooth Serial Port Profile Connect	BT_TRM0,DNG4.	<a href="#">18</a>
	Bluetooth HID Keyboard Connect	PAPBTH.	<a href="#">18</a>
Legacy Mode	* Legacy Mode	LKBMODO.	<a href="#">17</a>
Compatibility Mode	Compatibility Mode (Optional)	LKBMOD1.	<a href="#">17</a>
Pair with a Zebra® Device	Bluetooth Serial Port Profile Connect	BT_TRM0,DNG4.	<a href="#">18</a>
	Bluetooth HID Keyboard Connect	PAPBTH.	<a href="#">18</a>
Pair to a Communication and Charge Base or Access Point	CCB/AP Connect	BT_TRM0;BT_EHM0;WIDSCNO	<a href="#">19</a>
	CCB/AP Disconnect	BT_EHM1,DNG1;WIDSCN1	<a href="#">19</a>

<b>Selection</b>	<b>Setting * Indicates default</b>	<b>Serial Command # Indicates a numeric entry</b>	<b>Page</b>
Pair with a Vocollect Device	Bluetooth Serial Port Profile Connect	BT_TRM0,DNG4.	19
	CR/LR Suffix	SUFBK2990D0A	19
Disconnect from the Host	Bluetooth Disconnect	BT_DNG4,ADR	20
Unpair When Charging	*Off	BT_DSC0	20
	Unpair When Charging	BT_DSC2	20
Configure the 8690i with EZConfig for Scanning	Bluetooth Connect - EZCS	PAPSPP;BT_DNG1	21
Set Custom Defaults	Set Custom Defaults	MNUCDP	23
	Save Custom Defaults	MNUCDS	23
Reset Custom Defaults	Activate Custom Defaults	DEFAULT	23
<b>Wireless System Operation</b>			
Change a Bluetooth PIN Code	Bluetooth PIN Code	BT_PIN#	27
Auto Reconnect Mode	*Auto Reconnect On	BT_ACM1	28
	Auto Reconnect Off	BT_ACM0	28
Maximum Link Attempts	Maximum Link Attempts (*0)	BT_MLA	29
Relink Time-Out	Relink Time-Out (Range 1-100 seconds (*3))	BT_RLT	29
Reset device	Reset Device	RESET_	31
Device Report	Device Report	RPTSCN	31
Device Address	Device Address	BT_LDA	31
Linked Modes	Unlink device	BT_RMV	32
	Override Locked Device	BT_RPL1	32
Out-of-Range Alarm	Scanner Alarm Duration (Range 1 - 3000 sec (*0))	BT_ORD	32
Alarm Sound Type	Scanner Alarm Type (*0)	BT_ORW	33
Scanner Power Time-Out Timer	Timer (0-7200 seconds)	BT_LPT0	34
	200 Seconds	BT_LPT200	34
	400 Seconds	BT_LPT400	34
	900 Seconds	BT_LPT900	34
	*3600 Seconds	BT_LPT3600	34
	7200 Seconds	BT_LPT7200	34
Batch Mode	Automatic Batch Mode	BATENA1	35
	*Batch Mode Off	BATENA0	35
	Inventory Batch Mode	BATENA2	35
	Persistent Batch Mode	BATENA3	35
Batch Mode Beep	Off	BATBEPO	35
	*On	BATBEP1	35

<b>Selection</b>	<b>Setting * Indicates default</b>	<b>Serial Command # Indicates a numeric entry</b>	<b>Page</b>
Batch Mode Storage	*Flash Storage	BATNVS1	36
	RAM Storage	BATNVS0	36
Batch Mode Quantity	*Off	BATQTY0	36
	On	BATQTY1	36
Quantity Codes	0	BATNUM0	37
	*1	BATNUM1	37
	2	BATNUM2	38
	3	BATNUM3	38
	4	BATNUM4	38
	5	BATNUM5	38
	6	BATNUM6	38
	7	BATNUM7	38
	8	BATNUM8	38
Batch Mode Output Order	*FIFO	BATLIFO	38
	LIFO	BATLIF1	38
Total Records	Total Records	BATNRC	39
Delete Last Code	Delete Last Code	BATUND	39
Clear All Codes	Clear All Codes	BATCLR	39
Transmit Records to Host	Transmit Inventory Records	BAT_TX	39
Batch Mode Transmit Delay	*Off	BATDLY0	40
	Short (ms)	BATDLY250	40
	Medium (ms)	BATDLY500	40
	Long (ms)	BATDLY1000	40
Device Name	Name 1-7	BT_NAM#####	41
	Reset	RESET_	41
	Device Name	BT_NAM	40
Host Command Acknowledgment	Host ACK On	HSTACK1	43
	*Host ACK Off	HSTACK0	43
	Host ACK Timeout (Range 1-90 seconds (*10))	HSTATO##	43
Select Data Transmit	*WiFi	WET_BT0	44
	Bluetooth	WET_BT1	44
Enable WiFi	WiFi Disabled	WETENA0	44
	*WiFi Enabled	WETENA1	44
Beep on WiFi Connection	*Beep On	WETBEP1	44
	Beep Off	WETBEPO	45

<b>Selection</b>	<b>Setting * Indicates default</b>	<b>Serial Command # Indicates a numeric entry</b>	<b>Page</b>
WiFi Timeout	WirelessTimeout (Range 1000-360000 ms) *10000ms	WETCTO	45
Select WiFi Band	*Auto Selected (2.4 GHz or 5.0 GHz)	WETBND0	45
	2.4 GHz	WETBND1	45
	5.0 GHz	WETBND2	45
Reset WiFi Menu Settings Defaults	Activate WiFi Defaults	WETDFT	45
IP Address	IP Address	WETIPA	46
Default Gateway	Default Gateway	WETDGW	46
DHCP	*DHCP On	WETDHP1	46
	DHCP Off	WETDHP0	46
DNS Address	DNS Address	WETPRK	46
MAC Address	MAC Address	WETMAC	47
Bluetooth Data Routing	Bluetooth Data Routing	WETRTB	47
Set Roaming Threshold	Roaming Threshold (Range 60-100 dBm) *65 dBm	WETRTH	47
Get IP Address	Get IP Address	WETSIP	47
Set Subnet Mask	Subnet Mask	WETSNM	47
Certificate Authority (CA)	Show CA	WETCAC	48
	*Disable Extraction	WETCAX0	48
	Enable Extraction	WETCAX1	48
Private Key	Private Key Filename	WETPRK	48
	Private Key Password	WETPKP	48
Encryption Key	Encryption Key	WETCPH	49
EAP Settings	EAP Username	WETEID	49
	EAP Anonymous Username	WETAID	49
	EAP Password	WETPWD	49
EAP Phase 1 Authentication	*PEAP	WETEAP0	50
	Tunneled TLS	WETEAP1	50
	TLS	WETEAP2	50
EAP Phase 2 Authentication	*No Authentication	WETPH20	50
	MSCHAPv2	WETPH21	50
	GTC	WETPH22	50
Set System Time for EAP-TLS	System Time for EAP-TLS	WETTIM	50
SSID Encryption Type	No Encryption	WETECT0	51
	WEP	WETECT1	51
	*WPASPK	WETECT2	51
	WPAEAP	WETECT3	51
SSID Encryption Key	SSID Encryption Key	WETKEY	51

<b>Selection</b>	<b>Setting</b> <b>* Indicates default</b>	<b>Serial Command</b> <b># Indicates a numeric entry</b>	<b>Page</b>
Specify SSID of the Access Point/ Router	SSID of Access Point/Router	WETSSD	<a href="#">51</a>
Host Address	Host Address	WETHAD	<a href="#">51</a>
Host Address 2	Host Address 2	WETHA2	<a href="#">52</a>
Host Port 2	Host Port 2	WETHP2	<a href="#">52</a>
Host TCP Port Address	Host TCP Port Address	WETHPN	<a href="#">52</a>
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# ADVANCED APPLICATION PROGRAMMING

The following commands are used when coding user interface commands for the 8690i directly into an application.

**Note:** *The 8690i Software Development Kit can also be used to program the 8690i UI. See the 8690i Software Development Kit User Guide at [sps.honeywell.com](http://sps.honeywell.com).*

## Beeper and LCD Sequences

### BEPEHA

This command causes one of the following beeper and LCD sequences to be executed, based on a required character parameter, for example, **BEPEHA1**. See [Good Read and Error Indicators](#) on page 56 for further information.

- 1 Execute an LCD sequence of 130 milliseconds of good read LCD illumination followed by 70 milliseconds of no illumination.
- 2 Execute an LCD sequence of 1500 milliseconds of good read LCD illumination followed by 500 milliseconds of no illumination.
- 3 Execute an LCD sequence of 4500 milliseconds of good read LCD illumination followed by 500 milliseconds of no illumination.
- 4 Execute a beep sequence (no LCD) of 160 milliseconds at 1600 Hz.
- 5 Execute a beep sequence (no LCD) of 160 milliseconds at 3250 Hz.
- 6 Execute a beep sequence (no LCD) 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 42).
  - a Execute a menu good beep sequence.
  - b Execute a menu error beep sequence.

## Sample

```
char cBeepMenuString[] = "\\x16M\\x0DBEPEHA1.";
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 Settings

## QUITXT

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.

## Sample

This string sends "Hi" to the first line (binary 0):

```
QUITXT004869
```

This data is a binary byte 0, followed by the two ASCII characters:

Byte	Value
0	0x00 (line 0)
1	0x48 ( <b>H</b> )
2	0x69 ( <b>i</b> )

The hex string encoding is:

Byte	Value
0	0x32 ( <b>0</b> )
1	0x32 ( <b>0</b> )
2	0x34 ( <b>4</b> )
3	0x38 ( <b>8</b> )

Byte	Value
4	0x36 ( <b>6</b> )
5	0x39 ( <b>9</b> )

## 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

### GUIFSU

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);
```

## Single Line Display or Large Font

Set [GUIFSU](#) to 10 and use [GUITXT00xxxx](#) to write text to display line 1.

## 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 = FFFFFFFF (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
2	Blue

Valid values are 00-FF. Default = FFFFFFFF (white).

### Sample

```
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

Byte	Value
1	Green
2	Blue

Valid values are 00-FF. Default = 000000 (black).

### Sample

```
char cT_ClrMenuString[] = "\x16M\x0DGUITBC000000.";
SynMenuCmdSync(cT_ClrMenuString);
```

## Screen Display Settings

### Backlight Level

#### GUIBAK

This command uses a numeric entry to set the display's backlight level, from dimmer to brighter.

Valid values are 0-100. Default = 85.

### Sample

```
char cGuiControlString[] = "\x16M\x0DGUIBAK50.";
SynMenuCmdSync(cGuiControlString);
```

### Scan Time

#### GUISCT

This sets how many seconds a good or bad scan remains on the display.

Valid values are 0-30. Default = 30.

### Sample

```
char cGuiControlString[] = "\x16M\x0DGUISCT4.";
SynMenuCmdSync(cGuiControlString);
```

# Display Time

## DISTIM

This sets how many seconds the display remains on after receiving a message. Valid values are 0-30. Default = 3.

### Sample

```
char cDisplayTimeString[] = "\x16M\x0DDISTIM3.";
SynMenuCmdSync(cDisplayTimeString);
```

# Button Notifications

## GUIBNE

This command turns the button notifications on or off by enabling or disabling them. If the button is detected, a <SYN>FE message is sent to the host.

When button detection is enabled/on, a button press causes the GUIBTN message to be sent to the host. GUIBTN<sub>x</sub>, where x = 1 (left button), x = 2 (right button), or x = 3 (both buttons).

Value	Function
0	Disable/Off
1	Enable/On

Default = 0 (Disable/Off).

### Sample

```
char cGuiControlString[] = "\x16M\x0DGUIBNE1.";
SynMenuCmdSync(cGuiControlString);
```

# Language Setting

## GUICTY

This sets the display language characters.

Value	Function
0	English
1	Cyrillic

Default = 0 (English).

## Sample

```
char cGuiControlString[] = "\\x16M\\x0DGUICTY1.";
SynMenuCmdSync(cGuiControlString);
```

## Icon Bar

### GUIICN

This command turns the icon bar on or off by enabling or disabling it.

Value	Function
0	Disable/Off
1	Enable/On

Default = 0 (Disable/Off).

## Sample

```
char cGuiControlString[] = "\\x16M\\x0DGUIICN0.";
SynMenuCmdSync(cGuiControlString);
```

### GUIINF

This command shows product information such as; IP Address, Firmware Version, Wi-Fi MAC Address, and/or Bluetooth MAC Address.

Value	Function
0	Off
1	IP Address
2	Firmware Version
3	Wi-Fi MAC Address
4	Bluetooth MAC Address

Default = 0 (Off).

## Sample

```
char cGuiControlString[] = "\\x16M\\x0DGUIINF0.";
SynMenuCmdSync(cGuiControlString);
```

## Audio Transmission over Bluetooth

The following commands are used to play audio files through Bluetooth.

## Load Audio File

The audio files need to be uploaded to the device. The Makefile in the plugin needs to be updated to add the audio files.

**Note:** Only non-encoded .wav audio files are supported.

### Sample

Makefile:

```
$(BINNAME).moc $(BINNAME)_RF.moc
$(BINNAME).moc:$(BINNAME).plugin $(BINNAME)Conf
$(BINNAME) -m $@ -t CompatProd -f $(COMPATPODFILE) -d
$(APPENDMOC) -m $@ -t user -f $(BINNAME).plugin
$(APPENDMOC) -m $@ -t user -f $(BINNAME)Conf
$(APPENDMOC) -m $@ -t userid
$(APPENDMOC) -m $@ -t user -f <Audio File Name>.wav
```

Once the file has been added and the plugin is compiled and linked, load the plugin through EZConfig.

## Pair with an Audio Headset

Scan the barcode with the 8690i to connect the audio headset.



Use the 8690i to scan the EZPairing barcode that is either supplied with the audio headset or attached to the audio headset. The EZPairing barcode begins with [FNC3} LnkB, followed by 12 digits, like the sample below.



## Play Audio File

This command plays the audio file.

```
BEPWAV<filename>
```

## Audio File Volume

The audio file volume codes modify the volume of the audio file.





BT\_VOL0.

**Decrease Volume**



BT\_VOL1.

**Increase Volume**

## Offline Mode

The 8690i can operate in offline mode with transactions stored in device memory and operating logic defined by TotalFreedom™ plugins. For information on Offline Mode, refer to the TotalFreedom 2.0 Plug-In User Guide, available in the TotalFreedom SDK 2.0 at [sps.honeywell.com](http://sps.honeywell.com).



## PRODUCT SPECIFICATIONS

## Wearable Mini Mobile Computer

Parameter	Specification
<b>Mechanical</b>	
With BAT-SCN07 standard capacity battery:	
Height	3.8 inches (95.7mm)
Length	2.2 inches (56mm)
Width	1.6 inches (39.4mm)
Weight	7.4 ounces (211g)
<b>Electrical</b>	
Illumination	White LED (exempt risk group)
Aiming	650nm high visibility red laser (Class 2)
BAT-SCN07 standard capacity battery:	Lithium ion 3.6v 3400mAh
Expected Number of Scans	7497
Expected Hours of Operation	8.33 hours
Expected Charge Time	4 hours
<b>Radio</b>	
Bluetooth Radio	
Frequency	2.4 to 2.5 GHz (ISM Band) Adaptive Frequency Hopping
Specification	v.5.0 (BDR, EDR, LE) Class 1
Range	330 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/h/i/r/k/v
Data Rate	802.11b: up to 11 Mbps

Parameter	Specification
	802.11a/g: up to 54 Mbps
	802.11n: up to 135 Mbps
	802.11ac: up to 780 Mbps
<b>Environmental</b>	
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: 36 - 1.5 m (4.9 ft) drops to concrete 1.8 m (6 ft) to concrete at -20°C to 50°C (-4°F to 122°F) per MIL-STD-810G
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 (0.5 m)
<b>Image</b>	
Image Size	1280 x 800 pixels
<b>Scan Performance</b>	
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
<b>RFID</b>	
Standards	EPC Global Class 1 Gen 2/ISO 18000-6C
Antenna	Triggered Ring Field: Directed from top of device Polarization: Linear polarized  Glove Field: Directed from inside of wrist Polarization: Linear polarized
Frequency Ranges	EU: 865-868 MHz US: 902-928 MHz
Nominal Read Range	Internal Antenna: 0.6m (2ft) Glove auxiliary antenna: 1m (3.3 ft)
Nominal Write Range	Internal Antenna: 0.3m (1ft) Glove auxiliary antenna: 0.5m (1.6 ft)
Output Power	Internal/External max: 25dBm

# MB4A-SCN07 Charge Base Product Specifications

Parameter	Specification
<b>Mechanical</b>	
Height	1.97 inches (50mm)
Length	5.8 inches (147mm)
Width	5.3 inches (134mm)
Weight	17.28 oz (0.49kg)
<b>Electrical</b>	
Voltage	5.2 volts
Current Draw	1.3A output for each port
Charge Time	4 hours at room temperature 50°F to 86°F (10°C to 30°C) NOTE: time may increase at higher / lower temperatures
<b>Environmental</b>	
Operating Temperature	32°F to +122°F (0°C to +50°C)
Charging Temperature	41°F to 95°F (5°C to 35°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-SCN07 Charge Base Product Specifications

Parameter	Specification
<b>Mechanical</b>	
Height	2.83 inches (72mm)
Length	5.8 inches (147mm)
Width	5.3 inches (134mm)
Weight	17.6 oz (0.5kg)
<b>Electrical</b>	
Voltage	4.2 volts
Current Draw	1.5A output for each port
Charge Time	3 hours at room temperature 50°F to 86°F (10°C to 30°C) NOTE: time may increase at higher / lower temperatures
<b>Environmental</b>	
Operating Temperature	32°F to +122°F (0°C to +50°C)

Parameter (Continued)	Specification
Charging Temperature	41°F to 95°F (5°C to 35°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

## Depth of Field Charts

### 8690i Typical Performance

Symbology		Near Distance	Far Distance
5 mil Code 39	mm	63	294
	in.	2.48	11.57
10 mil Code 39	mm	33	510
	in.	1.3	20.08
20 mil Code 39	mm	37	793
	in.	1.46	31.22
13 mil 100% UPC-A	mm	37	566
	in.	1.46	22.28
15 mil Code 128	mm	35	643
	in.	1.38	25.31
10 mil Data Matrix	mm	65	290
	in.	2.56	11.42
6.7 mil PDF417	mm	77	237
	in.	3.03	9.33
25 mil QR Code	mm	32	407
	in.	1.26	16.02

### 8690i Guaranteed Performance

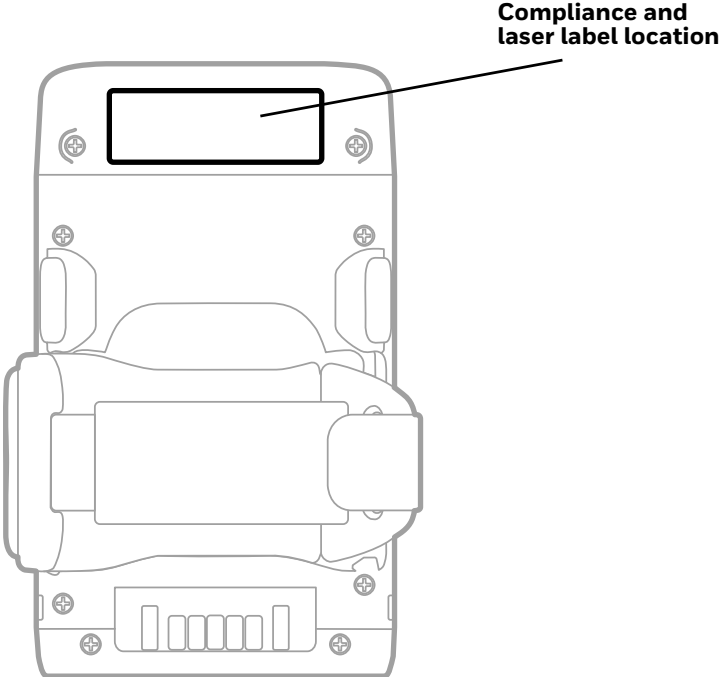
Symbology		Near Distance	Far Distance
5 mil Code 39	mm	72	263
	in.	2.83	10.35
10 mil Code 39	mm	33	443
	in.	1.3	17.44
20 mil Code 39	mm	37	667
	in.	1.46	26.26

<b>Symbology</b>		<b>Near Distance</b>	<b>Far Distance</b>
13 mil 100% UPC-A	mm	37	508
	in.	1.46	20.0
15 mil Code 128	mm	35	565
	in.	1.38	22.24
10 mil Data Matrix	mm	76	229
	in.	2.99	9.02
6.7 mil PDF417	mm	89	229
	in.	3.5	9.02
25 mil QR Code	mm	32	383
	in.	1.26	15.08

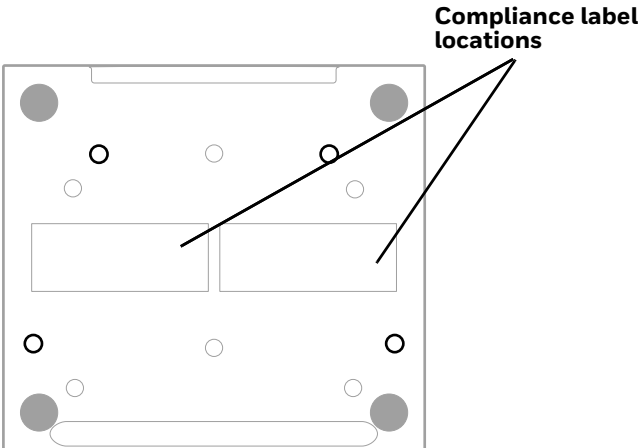
# Required Safety Labels

## 8690i Wearable Mini Mobile Computer

**Note:** Agency model 8690i



## Charge Bases





# 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 xv).

## 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:

The device or base's housing may be cleaned with a soft cloth dampened with water or a mild detergent-water solution. If a mild detergent solution is used, wipe the device or base with a clean cloth dampened only with water to remove any detergent residue.

The following are approved for cleaning your device:

Dimension 256, PDI Sani-Cloth AF3 Germicidal Disposable Wipe, PDI Super Sani-Cloth Germicidal Wipe, PDI Sani-Cloth Plus Germicidal Disposable Cloth, PDI Sani-Cloth HB Sani-Germicidal Disposable Wipe



**Caution: Do not submerge the device in water. Do not use abrasive wipes or cloths on the device's window. Abrasive wipes may scratch the window. Never use solvents (e.g., acetone) on the housing or window. Solvents may damage the finish or the window.**

**Caution: Ensure all components are dry prior to mating the device with charging accessories or other peripheral devices. Mating wet components may cause damage not covered by the warranty.**

## Clean the Window

Reading performance may degrade if the device's window is not clean. If the window is visibly dirty, or if the device isn't operating well, clean the window with soft cloth dampened with water.

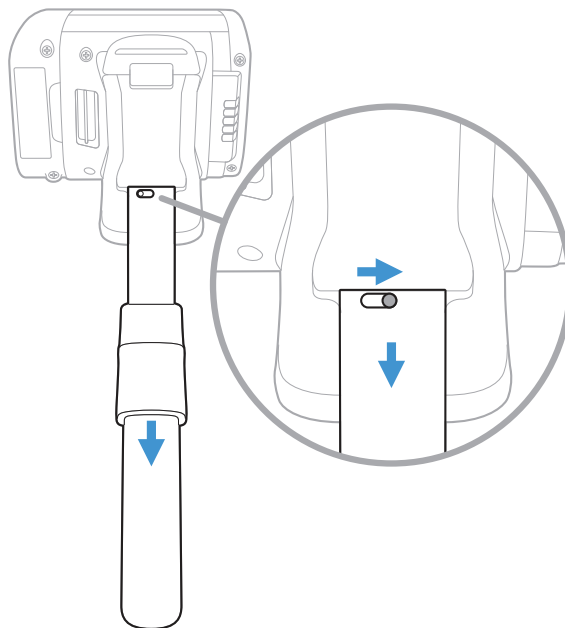


**Caution: Do not use abrasive wipes or cloths on the device's window. Abrasive wipes may scratch the window. Never use solvents (e.g., acetone) on the window. Solvents may damage the window.**

## 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.



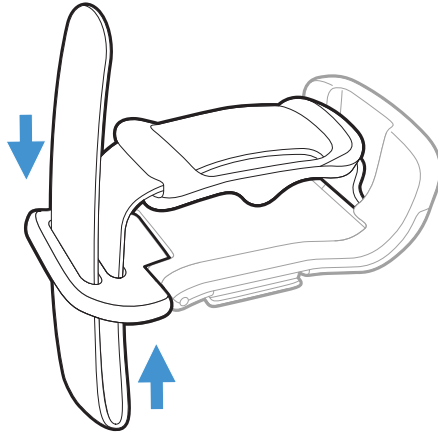
2. Slide and hold the silver spring bar on the new finger strap and slide it into place.
3. Release the spring bar.

# Replace the Pivot

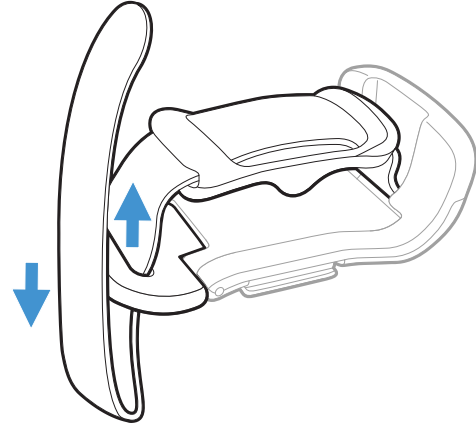
**Note:** The High Strength Pivot (PN: 8690i505PIVOT20) is only used with Two-Finger Hook and Loop Ring Strap (PN: 8680i505FNGRSTRAP2).

1. Open the finger strap so it is only attached to one side of the device.

Standard Pivot  
PN:8680i505PIVOT20

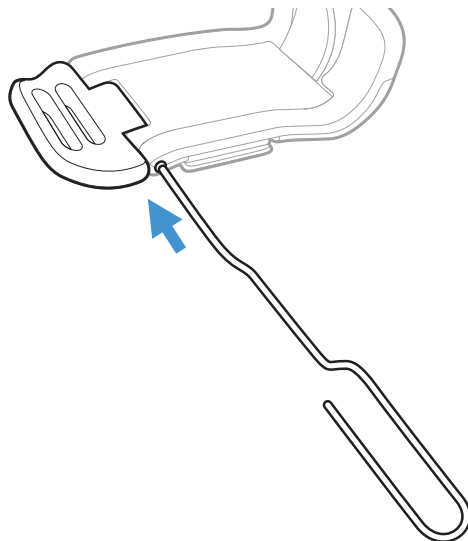


High Strength Pivot  
PN:8690i505PIVOT20

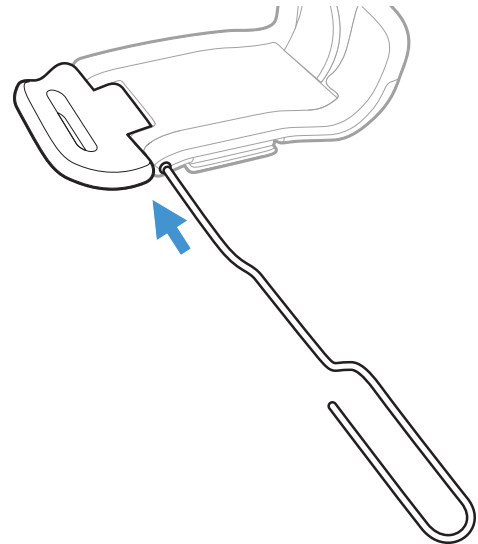


2. Straighten one end of a paper clip. Insert the end of the paper clip into the small hole on the triggered ring and pivot.

Standard Pivot  
PN:8680i505PIVOT20

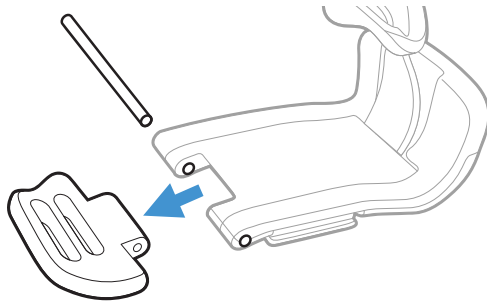


High Strength Pivot  
PN:8690i505PIVOT20

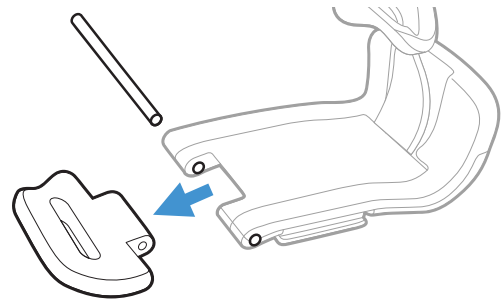


3. Slide the silver bar out and remove the old pivot.

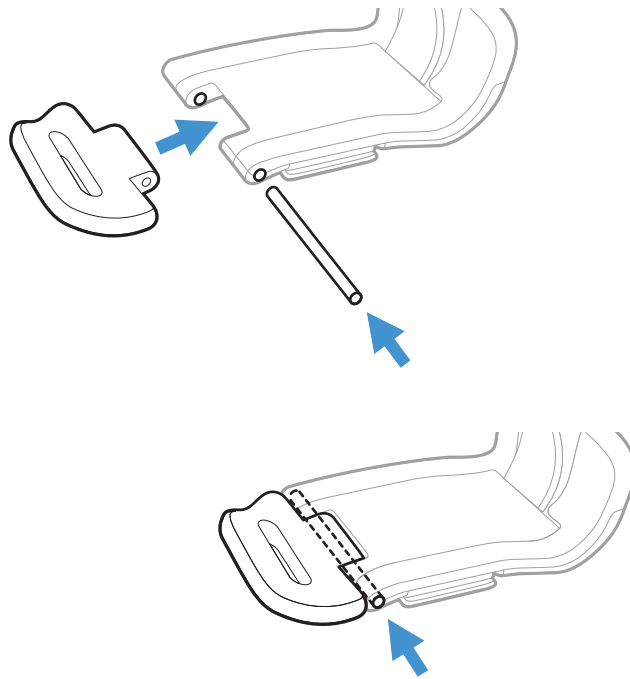
Standard Pivot  
PN:8680i505PIVOT20



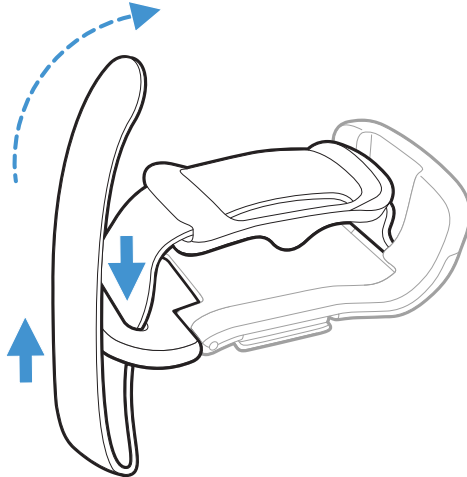
High Strength Pivot  
PN:8690i505PIVOT20



4. Insert new pivot and slide the silver bar through the hole on the triggered ring.



5. Pull the finger strap through the pivot.



## 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 device connects.

### ***Is the barcode displayed but not entered into the application?***

The barcode 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 device to output the barcode data plus the key you need (such as "CR") to enter the data into your application. Refer to [Prefix/Suffix Overview](#) on page 83 for further information.

### ***The scanner won't read your barcode at all.***

- Scan the sample barcodes from [Sample Symbols](#), beginning on page 251. If the scanner reads the sample barcodes, check that your barcode is readable.
- Verify that your barcode symbology is enabled (see [Chapter 6](#)).
- If the scanner still can't read the sample barcodes, scan [All Symbologies](#) on page 110.



## 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 83 and [Data Format](#) beginning on page 89 for information about using Code ID and AIM ID.

## Linear Symbologies

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
All Symbologies				99
Codabar	JFm	0-1	a	61
Code 11	JH3		h	68
Code 128	JCm	0, 1, 2, 4	j	6A
Code 32 Pharmaceutical (PARAF)	JX0		<	3C
Code 39 (supports Full ASCII mode)	JAm	0, 1, 3, 4, 5, 7	b	62
TCIF Linked Code 39 (TLC39)	JL2		T	54
Code 93 and 93i	JGm	0-9, A-Z, a-m	i	69
EAN	JEm	0, 1, 3, 4	d	64
EAN-13 (including Bookland EAN)	JE0		d	64
EAN-13 with Add-On	JE3		d	64
EAN-13 with Extended Coupon Code	JE3		d	64
EAN-8	JE4		D	44

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
EAN-8 with Add-On	JE3		D	44
GS1				
GS1 DataBar	jem	0	y	79
GS1 DataBar Limited	jem		{	7B
GS1 DataBar Expanded	jem		}	7D
GS1-128	JC1		l	49
2 of 5				
China Post (Hong Kong 2 of 5)	JX0		Q	51
Interleaved 2 of 5	Jlm	0, 1, 3	e	65
Matrix 2 of 5	JX0		m	6D
NEC 2 of 5	JX0		Y	59
Straight 2 of 5 IATA	JRm	0, 1, 3	f	66
Straight 2 of 5 Industrial	JS0		f	66
MSI	JMm	0, 1	g	67
Telepen	JBm		t	74
UPC		0, 1, 2, 3, 8, 9, A, B, C		
UPC-A	JE0		c	63
UPC-A with Add-On	JE3		c	63
UPC-A with Extended Coupon Code	JE3		c	63
UPC-E	JE0		E	45
UPC-E with Add-On	JE3		E	45
UPC-E1	JX0		E	45

Add Honeywell Code ID				5C80
Add AIM Code ID				5C81
Add Backslash				5C5C

## 2D Symbologies

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
All Symbologies				99
Aztec Code	zjm	0-9, A-C	z	7A
Chinese Sensible Code (Han Xin Code)	JX0		H	48



Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
Codablock A	]O6	0, 1, 4, 5, 6	V	56
Codablock F	]Om	0, 1, 4, 5, 6	q	71
Code 49	]Tm	0, 1, 2, 4	l	6C
Data Matrix	]dm	0-6	w	77
Dot Code	]J0		.	2E
GS1	]em	0-3	y	79
GS1 Composite	]em	0-3	y	79
GS1 DataBar Omnidirectional	]em	0-3	y	79
MaxiCode	]Um	0-3	x	78
PDF417	]Lm	0-2	r	72
MicroPDF417	]Lm	0-5	R	52
QR Code	]Qm	0-6	s	73
Micro QR Code	]Qm		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 Barcode	]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 different 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 ASCII control characters			Keyboard Control + ASCII (CTRL+X) Mode		
DEC	HEX	Char	Control + X Mode Off (KBDCAS0)	Windows Mode Control + X Mode On (KBDCAS2)	
				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	<i>(Apple Make)</i>	CTRL+ H	History
9	09	HT	Tab	CTRL+ I	Italic
10	0A	LF	<i>(Apple Break)</i>	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	f	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	^	ê	Page Up	0x49
137	89	‰	ë	Page Down	0x51
138	8A	Š	è	Right ALT	0x38
139	8B	<	ï	Right CTRL	0x1D

**Extended ASCII Characters (Continued)**

DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
140	8C	Œ	î	Reserved	n/a
141	8D		ï	Reserved	n/a
142	8E	Ž	Ā	Numeric Keypad Enter	0x1C
143	8F		Ă	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	›	ç	F12	0x58
156	9C	œ	£	Numeric Keypad +	0x4E
157	9D		¥	Numeric Keypad -	0x4A
158	9E	ž	Ps	Numeric Keypad *	0x37
159	9F	ÿ	f	Caps Lock	0x3A
160	A0		á	Num Lock	0x45
161	A1	ı	í	Left Alt	0x38
162	A2	ç	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	ı	ª	Tab	0x0F
167	A7	§	º	Shift Tab	0x8F
168	A8	¨	¿	Enter	0x1C
169	A9	©	ƒ	Esc	0x01
170	AA	ª	¬	Alt Make	0x36
171	AB	«	½	Alt Break	0xB6
172	AC	¬	¼	Control Make	0x1D
173	AD		ı	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	T		
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	F		
214	D6	Ö	‡		
215	D7	×	‡		
216	D8	Ø	‡		
217	D9	Ù	J		
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	β		
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	ñ		
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 barcode 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 barcodes were created. The data characters should then appear properly.

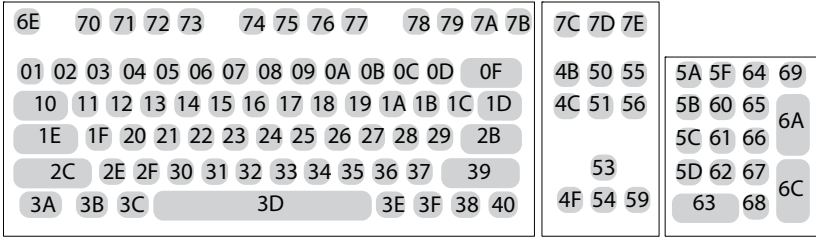
Code Page Selection Method/ Country	Standard	Keyboard Country	Honeywell Code Page Option
United States (standard ASCII)	ISO/IEC 646-IRV	n/a	1
Automatic National Character Replacement	ISO/IEC 2022	n/a	2 (default)
Binary Code page	n/a	n/a	3
<b>Default "Automatic National Character replacement" selects the below Honeywell Code Page options for Code128, Code 39 and Code 93.</b>			
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
Spain	ISO/IEC 646-17	10	90

<b>Code Page Selection Method/ Country</b>	<b>Standard</b>	<b>Keyboard Country</b>	<b>Honeywell Code Page Option</b>
Spain	ISO/IEC 646-85	51	91

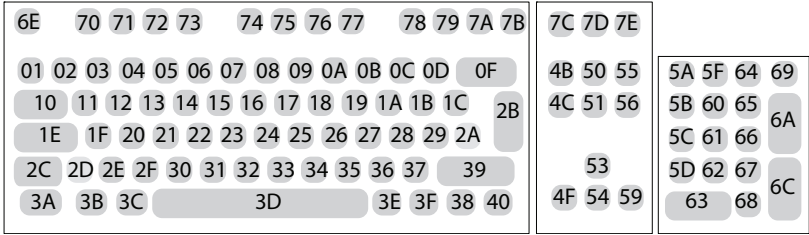
Dec			35	36	64	91	92	93	94	96	123	124	125	126
Hex			23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	0	1	#	\$	@	[	\	]	^	`	{		}	~
CA	54	95	#	\$	à	â	ç	ê	î	ô	é	ù	è	û
CA	18	96	#	\$	à	â	ç	ê	É	ô	é	ù	è	û
JP	28	98	#	\$	@	[	¥	]	^	`	{		}	-
CN	92	99	#	¥	@	[	\	]	^	`	{		}	-
GB	7	87	£	\$	@	[	\	]	^	`	{		}	~
FR	3	83	£	\$	à	°	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	#	\$	§	í	Ñ	¿	^	`	°	ñ	ç	~
ES	51	91	#	\$	·	í	Ñ	Ç	¿	`	´	ñ	ç	¨
<b>COUNTRY</b>	<b>Country Keyboard</b>	<b>Honeywell CodePage</b>	<b>ISO / IEC 646 National Character Replacements</b>											



# Keyboard Key References



**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



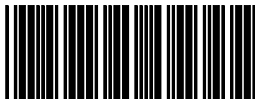
9 780330 290951

Code 128



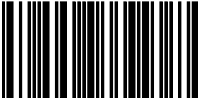
Code 128

Code 39



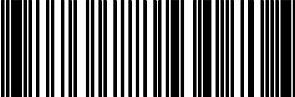
BC321

Codabar



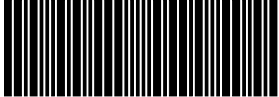
A13579B

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



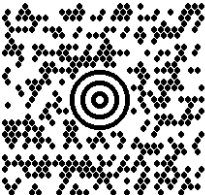
Test Symbol

QR Code



Numbers

MaxiCode



Test Message

Micro PDF417



Test Message

# PROGRAMMING CHART



K0K  
0



K2K  
2



K4K  
4



K6K  
6



K8K  
8



K1K  
1



K3K  
3



K5K  
5



K7K  
7



K9K  
9

# PROGRAMMING CHART (CONTINUED)



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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