Intermec®

# SG20B

## Cordless Scanner and Base Station

# User's Guide

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## Document Change Record

This page records changes to this document. The document was originally released as Revision 01.

| Version Number | Date | Description of Change |
|---|---|---|
| 03 | 3/2014 | • Added Honeywell patent info and name.<br>• Added note that battery should be changed by a certified technician.<br>• Took out the Intermec USB Bluetooth Adapter as an accessory - no longer available.<br>• Reorganized Chapter 6. Added upgrade via base station.<br>• Added recover in firmware download procedure.<br>• Modified Chapter 5 and made some corrections.<br>• Took out reference to connectivity matrix - does not exist.<br>• Took out Korean support info. |

| Version Number | Date | Description of Change |
|---|---|---|
| 02 | 4/2013 | • Revised for ANATEL certification - added Base Station model name (SG20BS) in the specs per their request.<br>• Took out firmware upgrade bar code in firmware upgrade procedure for paired (step 5) and not paired (step 2) scanners. This was an error.<br>• Corrected TBD's in Chapter 6 (maybe - need to check procedure to find firmware for base station).<br>• Added SG20B2D and SG20B2DHP on list of models where needed.<br>• Added cell phone scanning to predefined imager modes 1d and 2D bar codes with reflective surface.<br>• Updated 1D and HP reading distances with extended reading range activated.<br>• Added flexible stand in accessories.<br>• Modified the firmware download procedure for the scanner.<br>• Took out DPM mode. |

# Contents

# Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

## Safety Information

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.


**A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.**


**A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.**

**Note:** Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

## Global Services and Support

### Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at **www.intermec.com** and click **Support** > **Returns and Repairs** > **Warranty**.

### Web Support

Visit the Intermec web site at **www.intermec.com** to download our current manuals (in PDF).

Visit the Intermec technical knowledge base (Knowledge Central) at **www.intermec.com** and click **Support** > **Knowledge Central** to review technical information or to request technical support for your Intermec product.

### Send Feedback

Your feedback is crucial to the continual improvement of our documentation. To provide feedback about this manual, please contact the Intermec Technical Communications department directly at **TechnicalCommunications@intermec.com**.

### Telephone Support

In the U.S.A. and Canada, call **1-800-755-5505**.

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **About Us** > **Contact Us**.

## Who Should Read This Manual

This *SG20B Cordless Scanner + Base Station User's Guide* is for the person who is responsible for installing, configuring, and maintaining the SG20B Cordless System.

This *SG20B Cordless Scanner + Base Station User's Guide* provides you with information about the features of the SG20 Cordless Scanner and the SG20 Bluetooth Base Station, and how to install, configure, operate, maintain, and troubleshoot them.

Before you work with the SG20B Cordless Scanner and SG20 Bluetooth Base Station, you should be familiar with your network and general networking terms, such as IP address.

## Related Documents

The Intermec web site at **www.intermec.com** contains our documents (as .pdf files) that you can download for free.

### To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click the **Products** tab.
3. Using the **Products** menu, navigate to your product page. For example, to find the CN3 computer product page, click **Computers** > **Handheld Computers** > **CN3**.
4. Click the **Manuals** tab.

If your product does not have its own product page, click **Support** > **Manuals**. Use the **Product Category** field, the **Product Family** field, and the **Product** field to help you locate the documentation for your product.

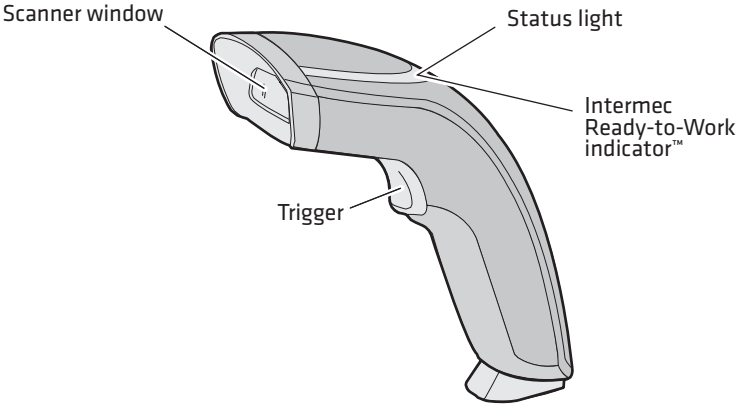
# 1

# About the SG20B Cordless Scanner

This chapter provides an overview of the SG20B Cordless Scanner. This chapter covers these topics:

# About the SG20B Cordless Scanner

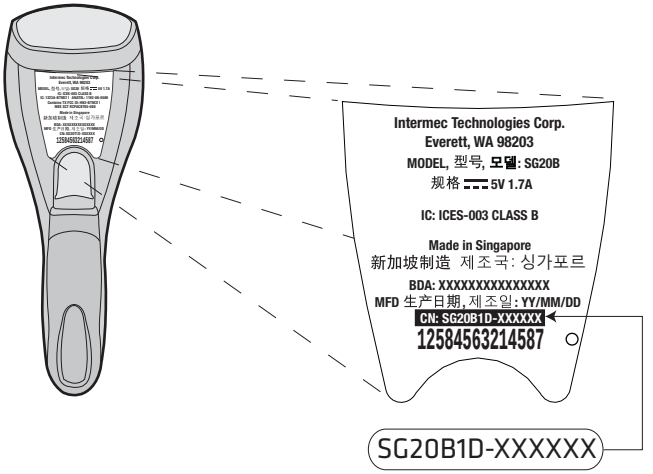
The SG20B Cordless Scanner is a general purpose handheld scanner. The SG20B is lightweight, ergonomically designed, and uses a Bluetooth™ radio for RF communications.




***SG20B Cordless Scanner***

The SG20B is available in the following models:

- 1D linear imager—SG20B1D-xxx
- 2D imager—SG20B2D-xxx
- Health Care 2D imager—SG20B2DHC-xxx
- High performance 2D area imager—SG20BHP-xxx
- Health Care 2D area imager—SG20BHPHC-xxx




***SG20B Scan Engine Option:*** *The scan engine option of your SG20B can be found in the first part of the configuration number. In this illustration, the scan engine option is SG20B1D for 1D linear imager.*

# Charge the SG20B

The SG20B uses a rechargeable lithium-ion battery (P/N BP-SG20-xxx) as its main power source.

Warning

**The battery pack used with this product may ignite, create a chemical burn hazard, explode, or release toxic materials if mistreated. Do not incinerate, disassemble, or heat above 100°C (212°F). Do not short circuit; may cause burns. Keep away from children.**

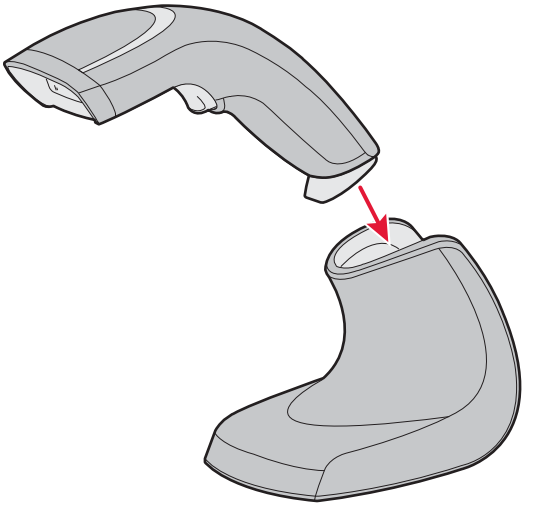
**Charge only in Intermec Models CB-SG20-xxx or BB-SG20-xxx. Use of incorrect charger may present a risk of fire or explosion. Promptly dispose of used battery pack according to the instructions.**

The SG20B battery can be charged using the SG20B Charge Base (P/N CB-SG20-xxx) or SG20 base station (P/N BB-SG20-xxx). For more information, see **"Required Accessories" on page 13**.

Make sure you fully charge the battery before you start using the SG20B. Should a problem arise with the battery, you can change it by yourself. For more information on how to replace a battery, see **"Replace the SG20B Scanner Battery" on page 83**.

### To charge the scanner's battery

- Place the SG20B in a charge base or base station. The SG20B beeps twice and flashes green to show it is charging.



*SG20B in a Charge Base*

## Charging Times

Charging times differ depending on how the SG20B Charge Base or SG20 Base Station is powered. There are two charging times:

- Fast charge = approximately 3 hours
- Slow charge = approximately 6 hours

### *Charge Base Charging Times*

| USB Connector | DC connector |
|---|---|
| Slow charge | Fast charge |

For more information on connecting the charge base see the *SG20B Charge Base Instructions* delivered in the box with your charge base.

### SG20 Base Station Charging Times

| USB Connector | 10-Pin Modular Connector | DC Connector |
|---|---|---|
| Slow charge | Fast charge | Fast charge |

For more information on charging times using the base station see **"Understand the Ports" on page 21**.

## Check Battery Status

When the battery capacity remaining is lower than 20% the scanner status light flashes red approximately every 2 seconds. This means you need to charge the battery.

If your scanner is off, pull the trigger to turn it on to see the battery status.

# Turn on the SG20B

Use the trigger to turn on the SG20B.

**To turn on the SG20B**

- Pull the trigger.

When you pull the trigger to turn on the SG20B, the scanner enters a discoverable state and remains discoverable for 5 minutes (before automatically shutting off, can be configured). While the SG20B is discoverable and in communications range, your host Bluetooth device can discover your SG20B and establish a Bluetooth connection.

If your SG20B is already connected to a Bluetooth device (blue Intermec Ready-to-Work indicator on), it is not discoverable.

If the status light on the SG20B flashes red when you pull the trigger to turn it on, you need to charge the battery.

# Connect the SG20B

The SG20B cordless scanner can be connected to a host either via a SG20 Base Station or via the host Bluetooth interface (for example an external Bluetooth USB adapter or an internal Bluetooth controller).

## Connect as a System

In the first case, the "SG20B Scanner + SG20 Base Station" unit works as a single **system** (it is called "system" throughout this document). The base station acts as an interface between the scanner and the host. A system can work only if the scanner is connected to the base station via Bluetooth and if the base station is properly powered and connected to the host using the appropriate interface cables (USB, RS-232 or Keyboard wedge Y-cable). The system can then be seen as a tethered scanner, except than you can walk freely holding your scanner in your hand.

For more information on how to connect and configure a SG20B scanner as a system, see **"Connect the Scanner and Base Station as a System" on page 27** and **"Configure the Scanner and Base Station as a System" on page 39**.

## Direct Connection

A scanner is said to be connected to a host in **direct connection** when it is connected to the host via a Bluetooth interface such as an external Bluetooth USB adapter or an internal Bluetooth controller.

For more information on how to connect and configure a SG20B scanner in direct connection, see **"Connecting the SG20B Scanner in Direct Connection to a Host" on page 51**.

## Advantages of a Connection as a System

The advantages of using your scanner as a system as opposed to a direct connection are the following:

- No need to know the Bluetooth address of the device to which to connect the scanner and to create a Bluetooth association bar code,
- No need to fit the host PC with a Bluetooth interface,

- Several interfaces available: RS-232, USB VCP, USB HID, Keyboard Wedge,
- More reliable and faster data transfer.

# Scan Bar Codes


**For the SG20BHP and SG20BHPHC do not look directly into the window area or at a reflection of the laser framing beam while scanning. Long-term exposure to the laser framing beam can damage your vision.**

The SG20B contains either a 1D linear imager (SG20B1D), a 2D imager (SG20B2D or SG20B2DHC) or high performance 2D imager (SG20BHP or SG20BHC) to scan bar code data. The type of scan engine you are using and the type of bar code you are decoding determines the way you scan the bar code.

When you unpack the SG20B, these bar code symbologies are enabled:

- Code 39
- Code 128 / GS1-128
- EAN/UPC
- PDF417 (all models except SG20B1D)
- DataMatrix (all models except SG20B1D)

If you are using bar code labels that are encoded in a different symbology, you need to enable the symbology on your SG20B. Use EasySet version 5.6.5.4 or later to enable and disable symbologies for your scanner.

**Note**: Be sure your SG20B scanner has established a Bluetooth connection with the SG20 Base Station (see **"Connect the SG20B Scanner to a SG20 Bluetooth Base Station" on page 34**) or with another Bluetooth device (see **"Connecting the SG20B Scanner in Direct Connection to a Host" on page 51**). If your scanner is not connected it will emit an error beep when scanning bar codes.

### To scan with a 1D imager

1. Turn on your scanner by pressing the trigger.
2. Connect your scanner to a SG20 Base Station or to another Bluetooth device.
3. Point the SG20B at the bar code and hold the SG20B at a slight angle 5 to 25 cm (2 to 10 in) from the label.
4. Pull the trigger, and direct the red beam so that it falls across all bars in the bar code label.

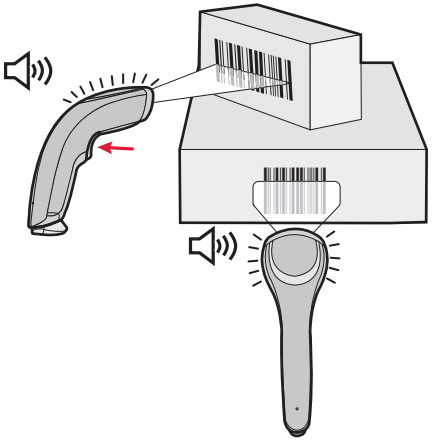
   Use this test bar code:

   Code 39 Test Bar Code

   *123456*

   **Tip:** Depending on your screen resolution, you can scan bar codes displayed on your computer screen.

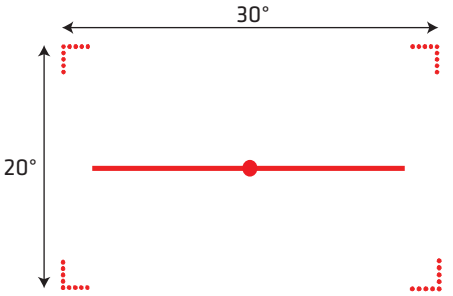
   By default, when the SG20B successfully scans a bar code, the SG20B beeps one time, the status light turns green for 2 seconds, and the scanner beam turns off.
5. Release the trigger.



***Scanning Bar Codes:*** *The aiming and scanner beams that you see depend on which SG20B model you are using.*

**To scan with a 2D imager**

1. Turn on your scanner by pressing the trigger.
2. Connect your scanner to a SG20 Base Station or to another Bluetooth device.
3. Point the scanner window at the bar code label and hold the SG20B steady a few inches from the label.
4. Pull the trigger and use the laser framing to position the imager over the bar code or area to capture.




***Example: SG20THP Laser Framing***

By default, when the SG20B successfully scans a bar code, the SG20B beeps one time, the status light turns green for 2 seconds, and the scanner lighting turns off.

**Note:** When bar code labels are printed close to each other, try to frame only the bar code you want to read, to avoid reading the wrong bar code.

5. Release the trigger.

## Hands-Free Scanning

The SG20B is a handheld scanner however you can scan items without having to hold your scanner in your hand. To do hands-free scanning, you will need to change the triggering mode to Autostand. To activate, see **"Hands-Free Scanning" on page 99**.

## Autostand Triggering Mode

Autostand mode is different depending on the scanner model. This section explains the difference between:

- Autostand for or all models except SG20B1D and
- Autostand for SG20B1D

### Autostand For All Models Except SG20B1D

Autostand is a mix of Level and Presentation triggering modes. When the scanner is not in the Charge Base or Base station it is in Level mode (pull the trigger to scan a bar code). When you place the scanner in a Charge Base or Base Station it automatically switches to Presentation mode. In this mode the scanner turns on automatically when it detects movement in front of the scanner window. This allows you to use your scanner for hands-free scanning. To return to Level mode (handheld scanning) take the scanner out the of the base.

### Autostand For SG20B1D

When using the 1D model Autostand is a mix of Level and Flashing triggering modes (1D model does not support Presentation mode). When the scanner is not in the Charge Base or Base station it is in Level mode (pull the trigger to scan a bar code). When you place the scanner in a Charge Base or Base Station it automatically switches to Flashing mode. In this mode the scanner is flashing. This allows you to use your scanner for hands-free scanning. To return to Level mode (handheld scanning) take the scanner out the of the base.

**Note:** Autostand mode is not available when using the Desktop Adjustable stand or the Flexible stand because it does not provide automatic detection of the scanner. If you are using this stand with the SG20B you must also enable the Ignore Stand Detect setting using EasySet version 5.6.5.4 or later. In this case the scanner switches to Presentation/Flashing mode after a configurable timeout and is not dependent on the stand.

# Understand the Lights

The status light and Intermec Ready-to-Work indicator on the SG20B flash red, green, amber and/or blue depending on the status of the scanner, battery and Bluetooth connection.

## Intermec Ready-to-Work Indicator

The Intermec-Ready-to-Work indicator ™ (blue LED) gives information about the Bluetooth connection. When a connection has been established the light is always on (blue) unless the scanner is docked in a Base station or charge base. In this case the blue light turns off even though the Bluetooth connection is still active.

***Blue Intermec Ready-to-Work Indicator***

| Light State | What it Means |
|---|---|
| Off | A Bluetooth connection has not been established.<br>OR<br>Scanner is docked in a base station or charge base (Bluetooth connection is active - check host to verify connection). |
| Blinking, slow | The scanner is trying to establish a Bluetooth connection with a Bluetooth device. |
| Blinking, fast | The scanner is awaiting user acknowledgement in a pairing procedure. |
| On | A Bluetooth connection to the base station or host computer is established. The SG20B is ready to scan bar codes and send data. |

When using your scanner to scan bar codes (blue light on) your scanner will also flash status information using green, red and amber lights. See the Status Light information in the next section.

# Status Light

The status light flashes green, red or amber to indicate the status of the scanner and/or battery. Status information is sometimes shown even if the Intermec Ready-to-Work Indicator is on. This way the scanner can communicate more than one type of information at the same time.

For example while the blue LED is on to show that there is a Bluetooth connection, the scanner will flash green when you have successfully scanned a bar code.

### Default Status Light Description

| Light State | What it Means |
|---|---|
| Green light on for 2 seconds | The scanner successfully decoded a bar code and sent the data to the host. |
| Green light flashes 2 times | A configuration bar code was successfully read. |
| Red light on for 2 seconds | Transmission error<br>OR<br>Configuration bar code was not accepted |
| Red, blinking | Battery power is low (< 20% - need to charge). |
| Green, blinking<br>(only when docked) | The scanner is charging.<br>Battery power is < 95%. |
| Green, on<br>(only when docked) | Battery is fully charged. |
| Amber, blinking | Battery fault. |

# Understand the Beeps

The SG20B beeps to give you audio feedback when performing some functions. For example, you hear a beep each time you scan a valid bar code.

### *Default SG20B Beep Descriptions*

| Beep Sequence | What it Means |
|---|---|
| Single beep | The SG20B successfully scanned a bar code. |
| Two fast beeps | The SG20B successfully scanned a configuration bar code or has been turned on. |
| Two beeps, bitonal | The SG20B is properly docked in the SG20B Charge Base or SG20 Base Station. |
| Six very fast beeps | Transmission error<br>OR<br>Configuration bar code was not accepted |
| Series of beeps from low to high | The SG20B is connecting to a Bluetooth host. |
| Series of beeps from high to low | The SG20B is disconnecting from a Bluetooth host.<br>**Note:** The scanner does not beep when disconnecting automatically after a long period of inactivity or when reading the "Bluetooth Device Disconnect" configuration bar code. |

# Accessories

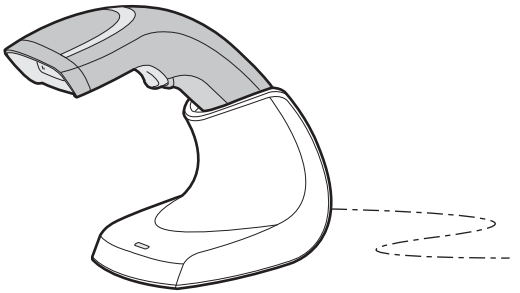
The following accessories are available for your scanner.

## Required Accessories

One of the following accessories is required for your SG20B Cordless Scanner.

### SG20 Bluetooth Base Station

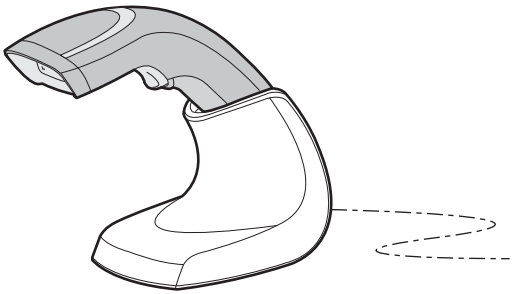
The Bluetooth Base station is used to charge your scanner and connect it to a non-Bluetooth host. For more information on the base station see **"About the SG20 Bluetooth Base Station" on page 18**.



***SG20 Bluetooth Base Station:*** *P/N BB-SG20-xxx*

### SG20B Charge Base

The charge base is used to charge your scanner only (no Bluetooth connection). For more information on the charge base see the *SG20B Charge Base Instructions* delivered in the box with the charge base.



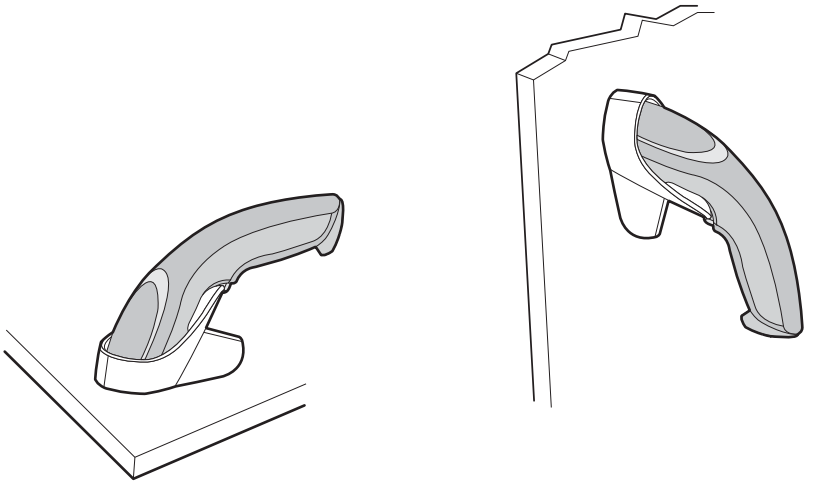
***SG20 Charge Base:*** *P/N CB-SG20-xxx*

## Optional Accessories

The following accessories are optional.

## Desktop/Wall Mount

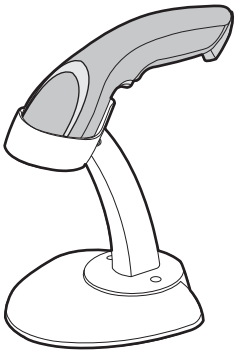
The desktop/wall mount holder can be used to store the SG20B when you are not using it. You can attach the holder with screws either to a desk or to a wall.



***SG20 Desktop/Wall Mount Holder:*** *P/N Holder-SG20-xx*

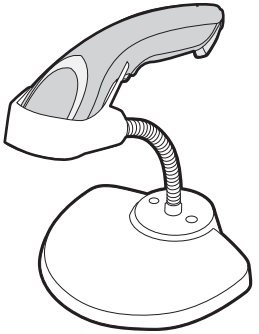
## Desktop Adjustable Stand

The desktop adjustable stand can be used to adjust the scanning angle when using the SG20B as a hands-free scanner (must change the default trigger setting) or to store it when you are not using it.



***SG20 Desktop Adjustable Stand:*** *P/N Stand-SG20-xx*

## Flexible Stand



***SG20 Flexible Stand:*** *P/N Flexstand-SG20-xx*

# 2

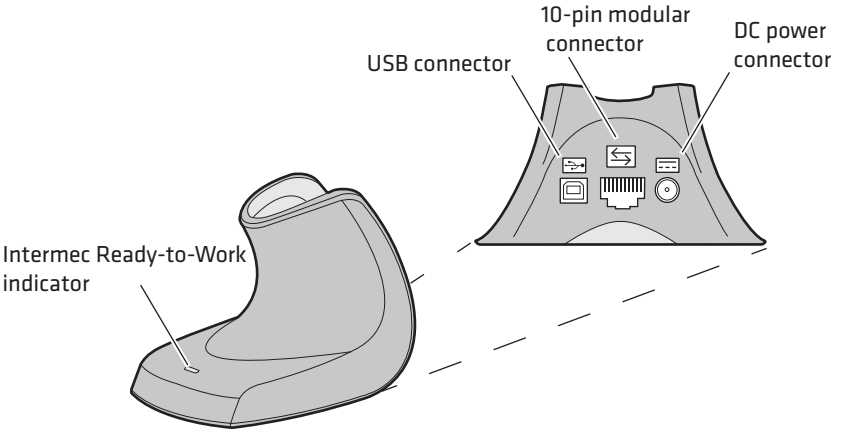
# About the SG20 Bluetooth Base Station

This chapter provides an overview of the SG20B Bluetooth Base Station. This chapter covers these topics:

# About the SG20 Bluetooth Base Station

The SG20 Bluetooth Base Station is used to connect an Intermec scanner to a non-Bluetooth host device. Data is transmitted from the scanner to the host via the SG20 Bluetooth Base Station. The SG20 Bluetooth Base Station is also used to charge a SG20B cordless Bluetooth scanner.

The SG20B scanner and SG20 Bluetooth Base Station are used together (in connection) as a standalone system.




*SG20 Bluetooth Base Station*

# Power the SG20 Bluetooth Base Station

The SG20 Bluetooth Base Station is powered through the cable connected to a host device or an external Intermec power supply. See **"Connect the SG20 Bluetooth Base Station to a Host" on page 28** for connection details.

**Note**: You cannot power the SG20 Bluetooth Base Station using a standard USB cable plugged in a power outlet via a USB power adapter.

# Install the SG20 Bluetooth Base Station

You can choose an unmounted installation or mounted installation for the base station.

Provided in the box:

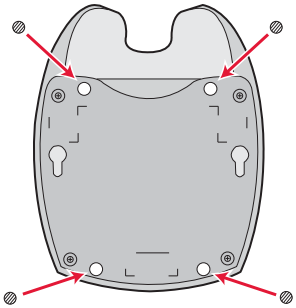
- Self-adhesive rubber feet (unmounted option)
- Double-sided foam tape (mounted option)

Not provided:

Mounting hardware appropriate for the thickness of the mounting surface (mounted option)

## Unmounted Installation

For an unmounted installation apply the rubber feet (provided) to their positions under the base.



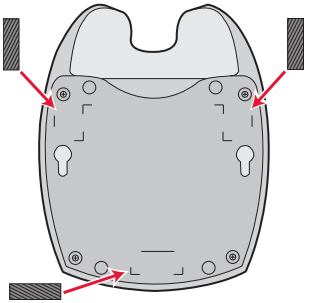
***SG20 Bluetooth Base Station Rubber Feet Locations***

## Mounted Installation

For a mounted installation apply the foam tape (provided) or use mounting hardware (not provided).

### To install using double-sided foam tape

1 Remove the protective film from one side of the double-sided tape and position onto tape locations.



*SG20 Bluetooth Base Station Tape Locations*

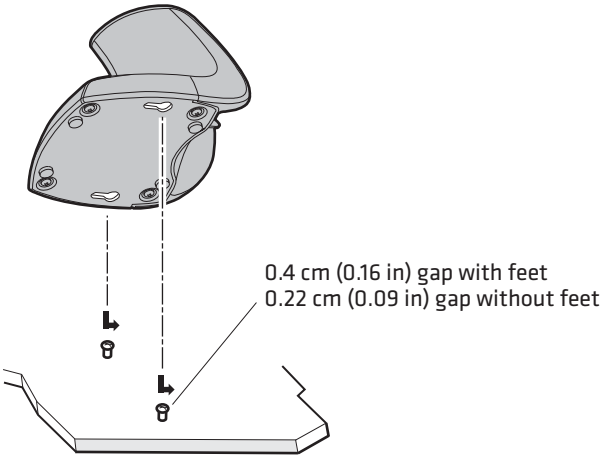
2 Remove the protective films from other sides.

3 Place the base station on a flat and clean mounting surface and push firmly.

**To install using mounting hardware**

1 Drill two holes in the mounting surface at a distance of 8.4 cm (3.3 in) and install mounting hardware.

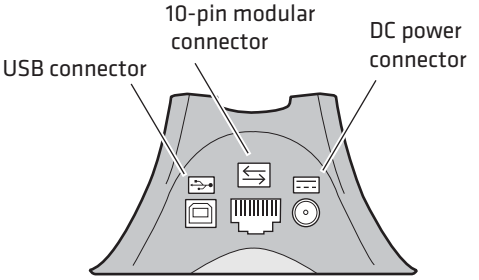
2 Mount the base station.




*Mounting the SG20 Bluetooth Base Station with Hardware*

# Understand the Ports

The SG20 Bluetooth Base Station has three ports which are described in the following table.




*SG20 Bluetooth Base Station Ports*

### SG20 Bluetooth Base Station Port Description

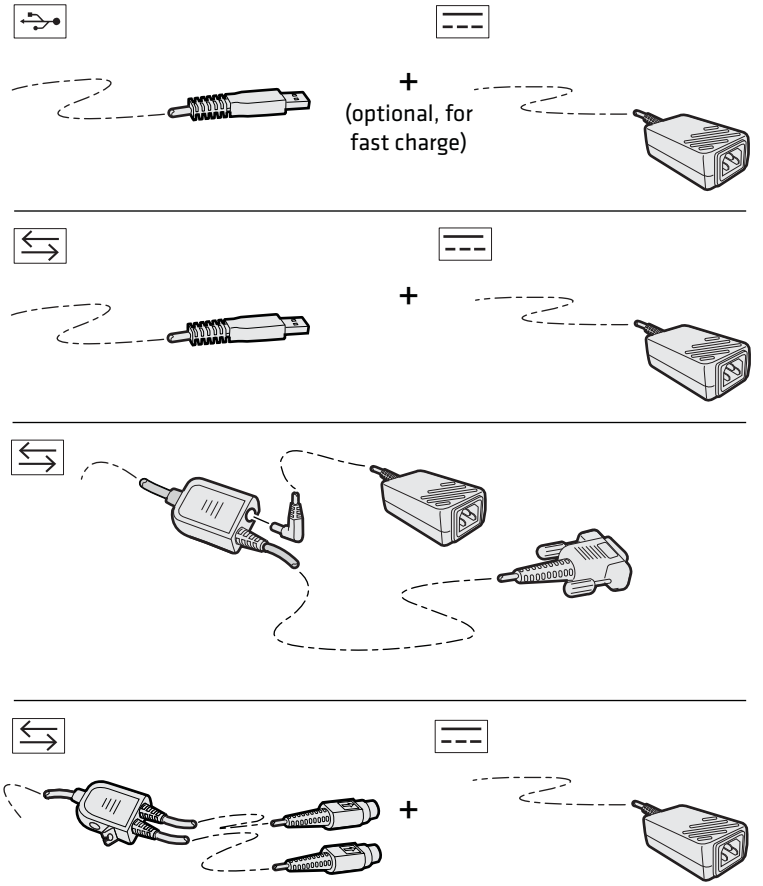
| Port | Description |
|---|---|
| USB connector<br>Symbol:<br>  | Used to transmit data as well as receive host commands (via EasySet) and charge a scanner.<br>The host USB port must provide 500 mA to power the base station and charge a scanner (slow charge—6 hrs) on this port. If not possible or to charge the scanner in fast charge you will need to use an Intermec external power supply connected to the DC connector.<br>**Note**: You cannot charge a scanner by plugging a standard USB cable in a power outlet via a USB power adapter. |

### SG20 Bluetooth Base Station Port Description

| Port | Description |
|---|---|
| 10-Pin modular connector<br>Symbol:<br>  | Used to connect any SG20 scanner cable (powered & non-powered):<br>• USB cable (non-powered)—Used to transmit data and receive host commands (via EasySet). To charge a scanner (fast charge—3 hrs) you must connect an external power supply on the DC connector on the base.<br>• Keyboard wedge Y-cable (non-powered)—Used to send data to a data collection application. To charge a scanner (fast charge—3 hrs) you must use an external power supply connected to the DC connector on the base.<br>• RS-232 cable (powered)—Used to transmit data and receive host commands (via EasySet). The RS-232 cable requires a power supply connected to the cable. This power supply provides power to charge a scanner (fast charge—3 hrs). No power needed on the base DC connector. |
| DC connector<br>Symbol:<br>  | Used to connect an Intermec power supply unit and charge a scanner (fast charge—3 hrs). |

# SG20 Bluetooth Base Station Recommended Connections

The figure below shows the recommended connection configurations to charge and/or interface with a SG20B scanner.




***SG20 Bluetooth Base Station Recommended Connections***

# Understand the Light

The SG20 Bluetooth Base Station has a blue Intermec Ready-to-Work™ light. This light is used to indicate the status of the Bluetooth and host connection as well as data transmission.


***SG20 Bluetooth Base Station Ready-to-Work Light***

### *Blue Intermec Ready-to-Work Indicator Description*

| Light State | What It Means |
|---|---|
| 2 flashes | Power-up |
| On | A Bluetooth connection has been established. The SG20 Bluetooth Base Station is ready to receive data from the scanner. |
| 1 blink off | Data has been successfully transmitted to the host. |
| Slow blinking | Connection is incomplete (cannot charge and/or interface with the scanner). See figure **"*SG20 Bluetooth Base Station Recommended Connections*" on page 23**. |
| Off | A Bluetooth connection has not been established. |

# Accessories

You will need one or more of the following cables for your SG20 Bluetooth Base Station.

### SG20 Bluetooth Base Station Cable List

| Cable | Part Number |
|---|---|
| SG20 USB cable (non-powered) | CAB-SG20-USBxxx |
| SG20 Keyboard wedge cable | CAB-SG20-KBWxxx |
| SG20 RS-232 cable | CAB-SG20-SERxxx |
| Universal Intermec power supply 5V | 851-089-xxx |

**Note:** A power cord is also needed to plug in the power supply. The power cord needed depends on your country and is sold separately.

# 3

# Connect the Scanner and Base Station as a System

This chapter explains how to connect the SG20 Bluetooth Base Station to a host and how to connect the SG20B to a SG20 Bluetooth Base Station. This chapter covers these topics:

- **Connect the SG20 Bluetooth Base Station to a Host**
- **Connect the SG20B Scanner to a SG20 Bluetooth Base Station**

# Connect the SG20 Bluetooth Base Station to a Host

The SG20 Bluetooth Base Station is connected to a host device using different cables depending on the interface for your application.

This section provides information on the following interfaces:

- USB
- RS-232
- Keyboard Wedge

## USB Interface

For a USB interface a standard or Intermec SG20 USB cable is connected to the USB connector or to the 10-pin modular connector. See **"Accessories" on page 25** for a list of available cables.

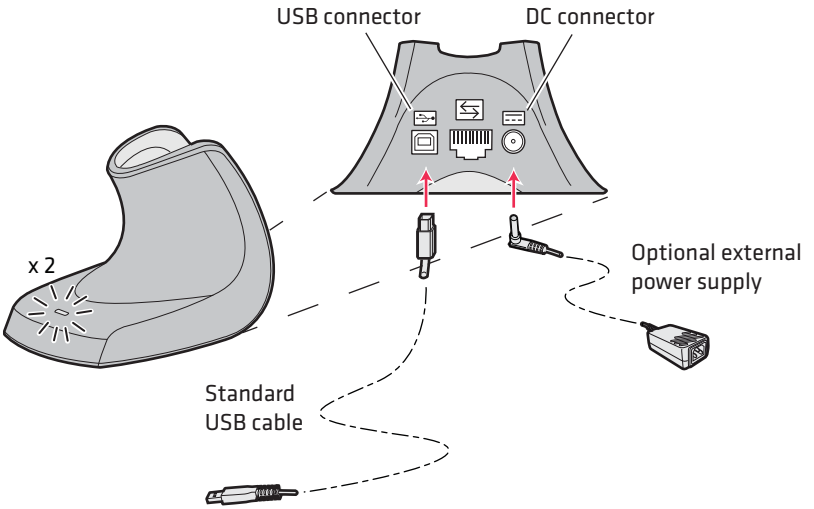
The default USB interface is Keyboard HID. To switch to Virtual Com Port mode, see **"USB Cable Mode" on page 42**.

### Connect to the USB Connector

Use a standard USB cable to connect from the USB connector of the base station to the USB port of your host. The host must provide 500 mA to power the base station and charge a scanner by slow charge. To charge a scanner by fast charge you must also connect an external power supply to the DC connector.

### To connect a USB cable to the USB connector

1 Connect a standard USB cable to the USB connector of the base station and to the host.




***SG20 Bluetooth Base Station USB Connection on USB Connector***

2 Connect the power supply (optional) to the DC connector and to an AC power outlet.

3 If your host device is off, turn it on. The SG20 Bluetooth Base Station is successfully connected and power is on when the blue light flashes 2 times.

**Note:** If you do not use an external power supply you may get a message that the host does not provide enough power. In this case use a different hub or disconnect other USB devices. The host must provide 500mA from the USB port to power the base station and charge a scanner by slow charge.

4 If necessary, configure your SG20 Bluetooth Base Station for an International keyboard using EasySet. The default keyboard is North America (for additional keyboards, see **"International Keyboard" on page 41**).

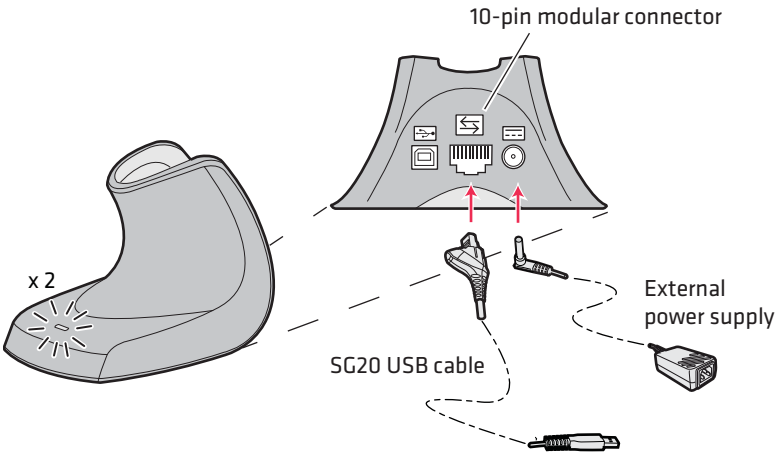
## Connect to the 10-Pin Modular Connector

Use an Intermec SG20 USB cable to connect from the 10-pin modular connector of the base station to the USB port of your host.

An external power supply to the DC connector is required.

### To connect a USB cable to the 10-pin modular connector

1 Connect an Intermec SG20 USB cable to the 10-pin modular connector of the base station and to the host.




***SG20 Bluetooth Base Station USB Connection on 10-pin Modular Connector***

2 Connect the power supply to the DC connector and to an AC power outlet.

3 If the host is turned off, turn it on. The SG20 Bluetooth Base Station is successfully connected and power is on when it emits 2 blue flashes.

4 If necessary, configure your SG20 Bluetooth Base Station for an International keyboard using EasySet. The default keyboard is North America (for additional keyboards, see **"International Keyboard" on page 41**).

# RS-232 Interface

For an RS-232 interface the RS-232 cable is connected to the 10-pin modular connector and requires an external power supply connected to the RS-232 cable. See **"Accessories" on page 25** for a list of part numbers for the different cables.

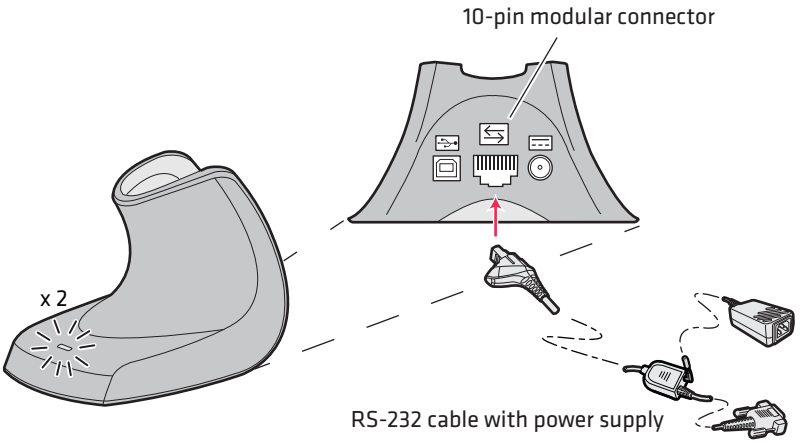
An RS-232 cable provides power to charge a scanner by fast charge.

The default RS-232 serial parameters for the SG20 Bluetooth Base Station are:

Baud Rate: 57600
Data Bits: 8
Parity: none
Stop Bits: 1

### To connect an RS-232 cable

1. Turn off your host device.
2. Connect the RS-232 cable to the 10-pin modular connector of your base station and connect to the host device.




***SG20 Bluetooth Base Station RS-232 Connection***

3. Connect the power supply to the RS-232 cable and an AC power outlet.
4. Turn on the host device.

The SG20 Bluetooth Base Station is successfully connected and power is on when it emits 2 blue flashes.

5 If necessary, configure the serial parameters of your base station using EasySet to match the host device (for more information on serial parameters setup, see **"RS-232 Interface Settings" on page 43**).

## Keyboard Wedge Interface

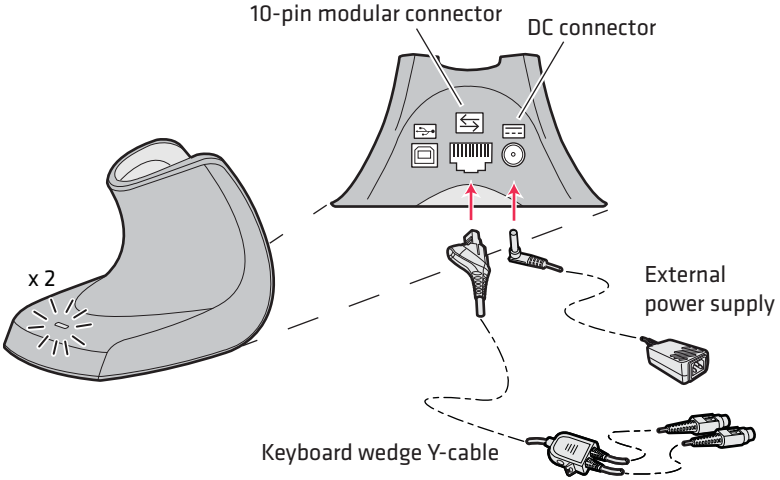
For a keyboard wedge interface the keyboard wedge Y-cable is connected to the 10-pin modular connector. If your host does not provide enough power you can connect an external power supply to the Y-cable. This will power your base station but will not provide enough power to charge a scanner in the base. To charge a scanner (fast charge) you must connect an external power supply to the DC connector.

### To connect with a keyboard wedge Y-cable

1 Turn off your host device.


**Do not connect a keyboard wedge Y-cable to a host that is turned on. You may damage your product.**

2 Connect the Y-cable to the 10-pin modular connector of your base station and to the host device (one end to the host and the other to a PS2 keyboard).




***SG20 Bluetooth Base Station Keyboard Wedge Y-Cable connection***

3. Connect the external power supply.
4. Turn on your host device.

   The SG20 Bluetooth Base Station is successfully connected and power is on when it emits 2 light flashes.
5. If necessary, configure your SG20 Bluetooth Base Station for an International keyboard. The default keyboard is North America (for additional keyboards, see **"International Keyboard" on page 41**).

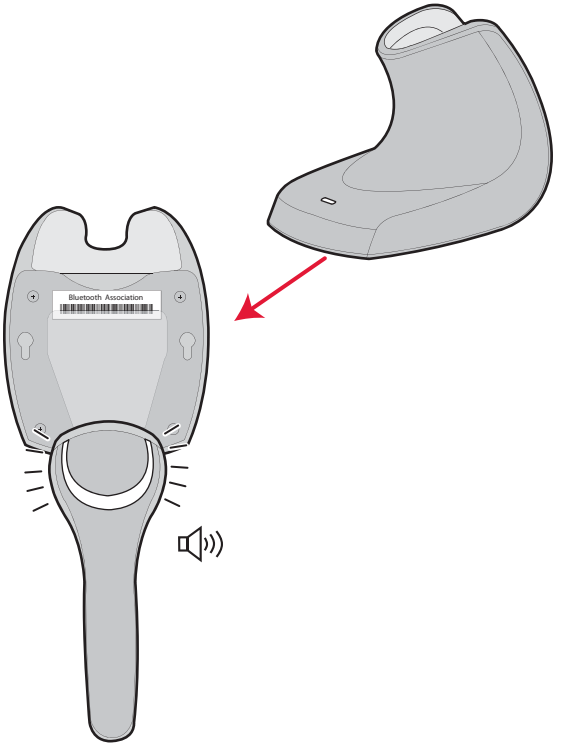
# Connect the SG20B Scanner to a SG20 Bluetooth Base Station

You can use Bluetooth radio communication to connect your SG20B scanner to the SG20 Bluetooth Base Station.

When your base station is connected to your host and your scanner is connected to your base station, they can be seen together as a single system, such as a tethered scanner.

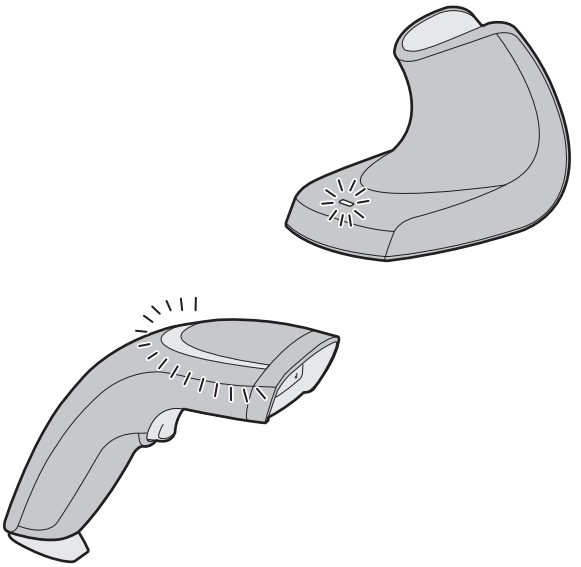
### To connect a scanner to the base station

1. Connect the SG20 Bluetooth Base Station to a host device using the correct cable for your interface (see **"Connect the SG20 Bluetooth Base Station to a Host" on page 28**).
2. Turn your SG20B on by pressing the trigger.
3. Read the Bluetooth association bar code on the bottom of the SG20 Bluetooth Base Station.




***Connect the SG20B to the SG20 Bluetooth Base Station***

The scanner beeps twice, the green status light flashes twice and the blue Intermec Ready-to-Work indicator starts blinking. When the scanner connects to the base station it emits a series of beeps from low to high. The blue Intermec Ready-to-Work indicator turns on and stays on for both the scanner and base station.



*Bluetooth Connected–Intermec-Ready-to-Work Indicator On*

Your scanner is ready to scan data.

**Note:** If you cannot read the association bar code located on the bottom of the base station you will need to create an association bar code using EasySet, see **"Configure Your System with EasySet" on page 47**.

## Out of Range Behavior

If the Bluetooth connection is lost (out of range, scanner battery too low, etc.) the scanner and base station will automatically try to reconnect once the problem is resolved (back in to range, recharge scanner battery, etc.). If you try to read a bar code while the scanner is disconnected from the base station, the scanner will emit an error beep.

No data is stored in the buffer, meaning that no data can be lost when the scanner looses connection with the base station.

### To disconnect a scanner from the base station

- Scan this bar code:

  Bluetooth Device Disconnect

  The SG20B disconnects from your base station, and the blue Intermec Ready-to-Work indicator turns off.

  **Tip:** Depending on your screen resolution, you may be able to scan bar codes displayed on your computer screen.

# 4

# Configure the Scanner and Base Station as a System

This chapter explains how to configure the SG20B scanner and SG20 Bluetooth Base Station as a system. It includes these topics:

- **Basic Setup with Configuration Bar Codes**
- **Configure Your System with EasySet**

# Basic Setup with Configuration Bar Codes

This section provides you with configuration bar codes for a basic setup. For more configuration options, use EasySet (see **"Configure Your System with EasySet" on page 47**).

All default values are marked with (*).

For a same setup, configuration bar codes can be different depending on whether they apply to the scanner or to the SG20 Bluetooth Base Station. This is indicated in the configuration bar code title ("Scanner" or "Base Station"). For example to reset your scanner to the factory default settings, you will need to scan the "Reset factory defaults - Scanner" configuration bar code; for the base station, scan the "Reset factory defaults - Base station" configuration bar code.

**Note**: It is recommended that your SG20B scanner has established a Bluetooth connection with a SG20 Bluetooth Base Station (see **"Connect the SG20B Scanner to a SG20 Bluetooth Base Station" on page 34**) prior to reading configuration bar codes.

## Reset Factory Defaults

You can reset the factory defaults of the scanner or of the base station.

When resetting your scanner, the Bluetooth connection is lost. Make sure you establish a Bluetooth connection again before trying to read bar codes.

Reset factory defaults - Scanner

Reset factory defaults - Base station

# USB Interface Settings

Use these configuration bar codes to set up your keyboard and USB cable mode.

## International Keyboard

By default the SG20 Bluetooth Base Station uses a North American keyboard layout. Use these configuration bar codes to select the keyboard for your country. Additional keyboards are available in EasySet (see **"Configuring Your System with EasySet" on page 31**).

North American Windows (*) - Base station

French Windows - Base station

French Canadian Windows 95/98 - Base station

French Canadian Windows XP/2000 - Base station

German Windows - Base station

Spanish Windows - Base station

Italian Windows - Base station

UK English Windows - Base station

Japanese Windows - Base station

Brazilian Portuguese Windows - Base station

Czech Republic Windows - Base station

Slovakian Windows - Base station

Hungarian 101-key - Base station

## USB Cable Mode

By default the USB cable mode is set to keyboard HID. However you can also set up your system to use the virtual COM USB cable mode.

The following configuration bar codes only apply to a connection with the SG20 Bluetooth Base Station when the base station is connected to your host using a USB cable.

USB Keyboard HID (*)

USB Virtual COM

When you change the USB cable mode, the scanner disconnects from the base station then automatically reconnects to it.

For a first time setup when using the virtual COM USB cable mode you will need to download and install the driver. You can download the driver from Knowledge Central on the Intermec web site.

**To download the USB virtual COM driver:**

1. Go to **http://intermec.custhelp.com.**
2. In the search box type "SG20B USB driver" and click **Search**.
3. Download the driver and instructions.
4. Follow the installation procedure provided in Knowledge Central.

**Note:** You can also install the virtual COM driver using EasySet version 5.6.5.4 or later by selecting **Virtual COM driver installation** in the **Options** menu.

## RS-232 Interface Settings

Use these configuration bar codes to set up the RS-232 interface.

### Baud Rate

38400

57600 (*)

115200

128000

230400

256000

460800

## Data Bits

7

8 (*)

## Parity

None (*)

Even

Odd

## Stop Bits

1 (*)

2

# Configure the Postamble

The default postamble is <CR> <LF> for the scanner and None for the base station. For certain applications or when using USB Keyboard HID you may need to change this setting. You can set a postamble for the scanner as well as for the base station.

Data are transmitted as follows with a postamble and/or preamble:

[Preamble - Base station][Preamble - Scanner][Data][Postamble - Scanner][Postamble - Base station].

## Postamble configuration bar codes - Scanner

Use the following configuration bar codes to change the default postamble at scanner level.

Carriage Return + Line Feed (*) - Scanner

None - Scanner

Carriage Return - Scanner

Enter - Scanner

## Postamble configuration bar codes - Base Station

Use the following configuration bar codes to change the default postamble at base station level.

Carriage Return + Line Feed - Base station

None (*) - Base station

Carriage Return - Base station

Enter - Base station

# Configure Your System with EasySet

EasySet is an Intermec configuration application that provides you with two ways to configure your scanner.

- Online setup—send configuration commands from EasySet directly to the product.
- Offline setup—send configuration commands to a bar code setup sheet, print the setup sheet and use a scanner to scan the bar codes.

EasySet is available on the Intermec web site at **www.intermec.com/EasySet.** Simply download and install.

## Online Setup with EasySet

Online setup with EasySet is only available if you are using an RS-232 cable or a USB cable.

### To configure your system online by sending commands from EasySet

1. Connect the base station to a host PC using an RS-232 or USB cable and set connection parameters if necessary.
2. Start EasySet. The first time you start EasySet, the **Select product** dialog box appears.

   If the **Select product** dialog box does not appear, choose **Product > Select** or click on the product icon in the upper left corner.
3. Select your product (SG20BSYS).
4. Select **Communication > Select communication interface.** The **Device Selection** dialog box appears.
5. Select the communication interface that you are using for your system and click **OK**.
6. EasySet connects to your system and retrieves the current configuration. These configurations are indicated with a blue check mark or blue text. Open the folders to find the configuration commands needed. Double click each command to send it to the system.

**Note:** The scanner does not beep when you send configuration commands online from EasySet. When you select **Disconnect** from the **Communication** menu in Easyset, the base station reboots and the scanner disconnects then reconnects to it.

## Offline Setup with EasySet

### To configure your system offline by scanning bar codes

1. Start EasySet. The first time you start EasySet, the **Select product** dialog box appears.

   If the **Select product** dialog box does not appear, choose **Product > Select** or click on the product icon in the upper left corner.
2. Select your product (SG20BSYS).
3. Open the folders to find the configuration commands needed. Double-click each command to send each command to the setup sheet.
4. Click on the print icon to print out the setup sheet and scan the commands.

# 5

# Connect and Configure the SG20B Scanner in Direct Connection

This chapter explains how to connect the SG20B scanner to a host and how to set up the scanner in direct connection configuration. This chapter covers these topics:

- **Connect the SG20B in Direct Connection**
- **Configure the SG20B in Direct Connection**

# Connect the SG20B in Direct Connection

The cordless SG20B scanner can communicate with a host device through the Bluetooth communications Human Interface Device Profile (HID) and Serial Port Profile (SPP). This is called a direct connection as opposed to a connection as a system (which uses an SG20 Bluetooth Base Station to interface with the host).

## HID Bluetooth Device Connection

With the HID profile, your SG20B is recognized as a keyboard. Connection information is stored, meaning that if the scanner loses connection (out of range, low battery, etc.), it will try to reconnect as soon as possible (back into range, charged battery, etc.). Moreover, no specific software is needed in HID profile as opposed to SPP profile to collect data.

Before trying to pair and connect your scanner, make sure:

- it is not already trying to establish a Bluetooth connection. If so, the blue Intermec Ready-to-Work indicator blinks; read the Bluetooth device disconnect bar code.

  Bluetooth Device Disconnect

- it is not already paired with your Bluetooth device. If so, remove it from your host's Bluetooth devices list.
- your host is set to allow Bluetooth device connections.

### Pair and Connect as an HID Bluetooth Device

This section describes how to pair and connect your scanner from your host PC.

#### To pair and connect as an HID Bluetooth device

1 Turn on your scanner by pulling the trigger.

2 Scan the Bluetooth device profile - HID configuration bar code

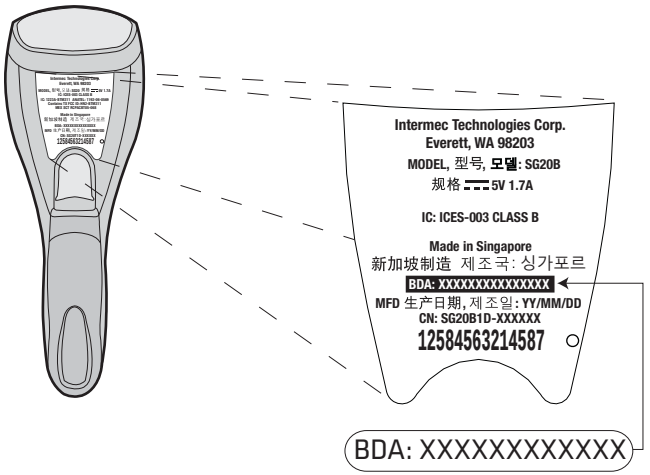
Bluetooth Device Profile - HID

3 Double-click the Bluetooth icon on your taskbar. The Bluetooth Devices listing all paired devices window appears.

4 Click on the command for adding a Bluetooth device (**Add** or **Add a device** depending on operating systems). The wizard for adding Bluetooth devices appears.

5 Follow the on screen instructions until your host searches for Bluetooth devices. The SG20B scanner appears in the Bluetooth device list as a keyboard in the following format: SG20B - *BDA*, where *BDA* is the scanner's Bluetooth Device Address (by default - name can be changed).

You can find the BDA on the scanner's label.




***SG20B BDA:*** *The scanner BDA can be found on the scanner's label*

**Note**: If the scanner does not appear in the list, it might be already paired with the host. Under some operating systems, already paired Bluetooth devices do not appear in the Bluetooth device search list.

6 Select your scanner and validate.

7 If a PIN is required (depending on your host operating system and Bluetooth version), enter the default Bluetooth PIN (0000) and validate. The blue Intermec Ready-to-Work indicator starts blinking rapidly, indicating that the scanner is awaiting acknowledgment.

8 Pull the trigger.

Your scanner is paired and automatically connects to the host. It emits a series of beeps from low to high, and the blue Intermec Ready-to-Work indicator turns solid blue.

### To Disconnect From the Host

To disconnect from the host, scan the disconnect bar code:

Bluetooth Device Disconnect

Check that the scanner is no longer in the host's device list. If necessary, manually remove the scanner from the list

## SPP Bluetooth Device Connection

The SPP profile allows your SG20B to use the Bluetooth link as a serial port to communicate with your host device. If you are using an application working with serial ports, you do not need to modify it to collect data with the SG20B.

You can connect your scanner to your host using one of the following connections:

- SPP outgoing connection (host initiated)
- SPP incoming connection (scanner initiated)

Before trying to pair or connect your scanner, make sure:

- it is not already trying to establish a Bluetooth connection. If so, the blue Intermec Ready-to-Work indicator blinks; read the Bluetooth device disconnect bar code.

  Bluetooth Device Disconnect

- it is not already paired with your Bluetooth device. If so, remove it from your host's Bluetooth devices list.
- your host is set to allow Bluetooth device connections.

## SPP Outgoing Connection (Host Initiated)

A host-initiated (Outgoing) SPP connection requires opening the Outgoing virtual COM port from your host application (EasySet or a terminal emulation program for example).

The advantage of this method is that no Bluetooth association bar code is required but if the connection with the host is lost, you must reconnect by re-opening the COM port.

### To connect in SPP device profile—outgoing connection

1. Turn on your scanner by pulling the trigger.
2. Scan the Bluetooth device profile - SPP configuration bar code

   Bluetooth Device Profile - SPP (*)

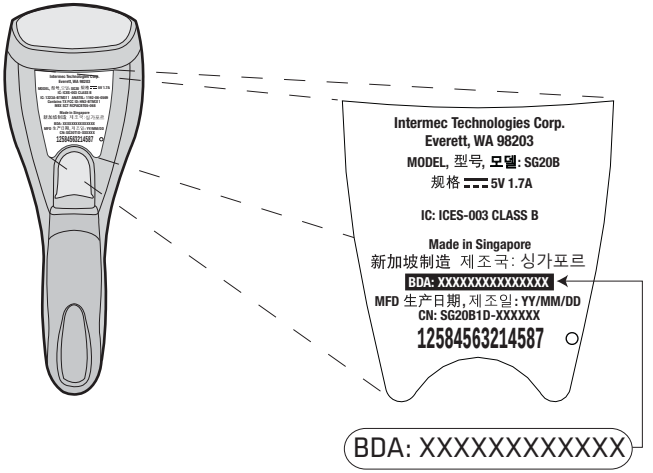
   

3. Pair the scanner with your device:
   - Double-click the Bluetooth icon on your taskbar. The Bluetooth Devices window appears.
   - Click on the command for adding a Bluetooth device (**Add** or **Add a device** depending on operating systems). The wizard for adding Bluetooth devices appears.

     Follow the on screen instructions until your host searches for Bluetooth devices. The SG20B scanner appears in the Bluetooth device list in the following format: SG20B - *BDA*,

where *BDA* is the scanner's Bluetooth Device Address (by default - name can be changed).

You can find the BDA on the scanner's label.




***SG20B BDA:*** *The scanner BDA can be found on the scanner's label*

**Note**: If the scanner does not appear in the list, it might be already paired with the host. Under some operating systems, paired devices do not appear in the Bluetooth device search list.

- Select your scanner and validate.

  If a PIN is required (depending on your host operating system and Bluetooth version), enter the default Bluetooth PIN (0000) and validate. The blue Intermec Ready-to-Work indicator starts blinking rapidly, indicating that the scanner is awaiting acknowledgment.

- Pull the trigger.

  Your scanner is now paired with your host. Two virtual Standard serial ports over Bluetooth link (incoming and outgoing) are created.

4 Note the outgoing **COM** port number, for example, by opening the Bluetooth settings from the Bluetooth icon in the taskbar or the operating system **Device Manager**.

5 Connect the host to the scanner by opening the COM port:

- Turn on the scanner by pulling the trigger.
- Start your host application and select the Outgoing COM port that you noted previously (see above).

  Depending on your host configuration and the time elapsed since your last connection or if your scanner has been reset since pairing, a pop-up might appear, indicating that a Bluetooth device is trying to connect.

  If so, click on the pop-up. A window appears asking for the pairing code. Enter the default Bluetooth PIN (0000) and validate.The blue Intermec Ready-to-Work indicator starts blinking rapidly, indicating that the scanner is awaiting acknowledgment.
- Pull the trigger.
- When the scanner connects to your host PC, it emits a series of beeps from low to high, and the blue Intermec Ready-to-Work indicator turns solid blue.

### To Disconnect from the Host

Use the Bluetooth disconnect procedure specific to your host application.

When the scanner disconnects from the host, it emits a "disconnect successful" beep sequence (series of beeps from high to low), and the blue Intermec Ready-to-Work indicator turns off (default scanner behavior).

## SPP Incoming Connection (Scanner Initiated)

A scanner-initiated (Incoming) SPP connection requires reading a Bluetooth association bar code then opening the Incoming port from the host application (a terminal emulation program for example).

The advantage of this method is that the scanner automatically tries to reconnect to the host application each time the connection is lost. This method is recommended when you are collecting data for a data management application.

### To connect in SPP device profile—incoming connection

1. Turn the scanner on by pulling the trigger.
2. Scan the Bluetooth device profile - SPP configuration bar code

   Bluetooth Device Profile - SPP (*)

3. Make sure that your host is enabled for Bluetooth connection from an external device (your SG20B).
   - Right-click the Bluetooth icon in the Windows system tray and choose **Open Settings** (or its equivalent).

     A Bluetooth settings window is displayed.
   - Under the **Options** tab (or equivalent), activate the following options or their equivalents:

     **Allow Bluetooth devices to connect to this computer**

     **Alert me when a new Bluetooth device wants to connect**
   - Under the **COM Ports** tab (or equivalent):

     Note the host computer's Incoming COM port. If there is no incoming COM port, you must create one.
   - Under the **Hardware** tab (or equivalent):

     Select **Properties > Advanced** and note the host computer's Bluetooth address.
4. Create a Bluetooth connection bar code in EasySet
   - Start EasySet version 5.6.5.4 or later. Make sure that SG20B is selected as your product.
   - Select the **Interface > Bluetooth > Connection > Bluetooth Quick Connect** folder.
   - Double-click on the **Compose BT address** command. A **Bluetooth - Connect/disconnect - Compose BT address** window opens.
   - Compose your host Bluetooth Device Address (BDA) and click **OK**. The Bluetooth association bar code is created.

5 Read the Bluetooth connection bar code. You may be able to read it on the screen in EasySet, if not you can print it out as a label and perhaps stick it on your host device where it is easy to read (suggestion).

   The blue Intermec Ready-to-Work indicator blinks slowly for 5 minutes to indicate it is waiting to connect (default scanner behavior).

6 Start the host application you want to connect to and open the Incoming COM port you noted previously.

   If a PIN is required (depending on your host operating system and Bluetooth version), enter the default Bluetooth PIN (0000) and validate. The blue Intermec Ready-to-Work indicator starts blinking rapidly, indicating that the scanner is awaiting acknowledgment.

7 Pull the trigger.

   When the scanner connects to your host application, it emits a series of beeps from low to high, and the blue Intermec Ready-to-Work indicator turns solid blue (default scanner behavior).

### To Disconnect From the Host

Use the Bluetooth disconnect procedure specific to your host application to close the Incoming COM port.

When the scanner disconnects from the host PC, it emits a "disconnect successful" beep sequence (series of beeps from high to low), and the blue Intermec Ready-to-Work indicator blinks slowly for 5 minutes to indicate it is waiting to connect (default scanner behavior).

When you open the Incoming COM port again, if the scanner is switched on it will reconnect to the host application.

# Configure the SG20B in Direct Connection

This section provides you with configuration bar codes for a basic setup of your scanner. It also gives the procedure for configuring your scanner in direct connection using EasySet.

## Basic Setup with Configuration Bar Codes

These configuration bar codes apply when your scanner is connected to a host in direct connection only.

All default values are marked with (*).

### Reset Your Scanner

To reset your scanner, read the reset factory defaults configuration bar code.

Reset factory defaults

### Set an International Keyboard

By default the SG20B uses a North American keyboard layout. Use these configuration bar codes to select the keyboard for your country. Additional keyboards are available in EasySet (see **"Configuring Your System with EasySet" on page 31**).

North American Windows (*)

French Windows

French Canadian Windows 95/98

French Canadian Windows XP/2000

German Windows

Spanish Windows

Italian Windows

UK English Windows

Japanese Windows

Brazilian Portuguese Windows

Czech Republic Windows

Slovakian Windows

Hungarian 101-key

### Configure the Postamble

The default postamble is <CR> <LF>. For certain applications or when using your scanner as an HID Bluetooth device you may need to change this setting. Use the following configuration bar codes to change the default postamble in your scanner.

Carriage Return + Line Feed (*)

None

Carriage Return

Enter

## Configure Your Scanner with EasySet in Direct Connection

EasySet is an Intermec configuration application that provides you with two ways to configure your scanner.

- Online setup—send configuration commands from EasySet directly to the product.
- Offline setup—send configuration commands to a bar code setup sheet, print the setup sheet and use a connected scanner to scan the bar codes.

EasySet is available on the Intermec web site at **www.intermec.com/EasySet.** Simply download and install.

### Online Setup with EasySet

Online setup with EasySet is available in direct connection if you are using your scanner either as an SPP or as an HID Bluetooth device.

### To configure your scanner online by sending commands from EasySet

1. Connect the scanner to a host PC (see **"Connect the SG20B in Direct Connection" on page 50**).
2. Start EasySet. The first time you start EasySet, the Select product dialog box appears.

   If the Select product dialog box does not appear, choose **Product > Select** or click on the product icon in the upper left corner.
3. Select your product (SG20B).
4. Select **Communication > Select communication interface.** The Device Selection dialog box appears.
5. Select the communication interface that you are using for your scanner and click **OK**.
6. EasySet connects to your scanner and retrieves the current configuration. These configurations are indicated with a blue check mark or blue text. Open the folders to find the configuration commands needed. Double click each command to send it to the scanner.

**Note:** The scanner does not beep when you send configuration commands online from EasySet. It powers off when you select **Disconnect** from the **Communication** menu in Easyset.

## Offline Setup with EasySet

### To configure your scanner offline by scanning bar codes

1. Start EasySet. The first time you start EasySet, the Select product dialog box appears.

   If the Select product dialog box does not appear, choose **Product > Select** or click on the product icon in the upper left corner.
2. Select your product (SG20B).
3. Open the folders to find the configuration commands needed. Double-click each command to send each command to the setup sheet.

Click on the print icon to print out the setup sheet and scan the commands.

# 6

# Troubleshoot and Maintain the Scanner and Base Station

Use this chapter to solve problems you may have while using the SG20B and SG20 Bluetooth Base Station. This chapter contains these topics:

# Problems and Possible Solutions

Use this section to find possible solutions to problems you may have.

### Problems and Possible Solutions

| Problem | Possible Solution |
|---|---|
| You pull the trigger, but nothing happens. | The SG20B is powered by a rechargeable lithium-ion battery. Make sure the battery is not fully discharged.<br>To recharge your SG20B scanner, dock it in a properly powered SG20B Charge Bluetooth Base or SG20 Bluetooth Base Station (see **"SG20 Bluetooth Base Station Recommended Connections" on page 23**). |
| You pull the trigger, the red scanning beam (1D) or laser framing (2D) turns on, but you cannot successfully scan a bar code. | Try these possible solutions:<br>• Make sure that the SG20B is configured for the symbology you are scanning.<br>• Make sure that the SG20B is at the appropriate scanning distance from the bar code. Move the SG20B closer and farther away to find the appropriate distance.<br>• Make sure that the SG20B is configured for the type (1D, 2D) of bar code you are scanning.<br>• Make sure the bar code you are trying to scan is not poorly printed or too small. Scan a known good bar code to make sure that the SG20B is working properly.<br>For more information, see **"Scan Bar Codes" on page 7**. |
| You scan a bar code and the status light turns on, but the SG20B does not beep. | The beep duration, volume, frequency, and number may be configured so the SG20B does not beep. To reset the SG20B, scan this bar code:<br>Reset factory defaults - Scanner<br>  |

### Problems and Possible Solutions (continued)

| Problem | Possible Solution |
|---|---|
| You scan a (configuration) bar code and the SG20B beeps six very fast beeps. | The SG20B does not recognize or support the configuration bar code you scanned, or has lost connection with your host (out of range, low battery...).<br>Try to re-establish the Bluetooth connection with the SG20 Bluetooth Base Station (see **"Connect the SG20B Scanner to a SG20 Bluetooth Base Station" on page 34**) or host Bluetooth interface (see **"Connecting the SG20B Scanner in Direct Connection to a Host" on page 51**) by getting back into range or recharging your scanner. |
| You scan a bar code, the SG20B beeps once, and the status light blinks green once, but the data is not transmitted to the host computer. | Try these possible solutions:<br>• Make sure that your data collection application is set up to receive data from the SG20B.<br>• If you are using an SG20 Bluetooth Base Station connected to your host using an RS-232 cable, make sure that the serial parameters on the SG20B match the serial parameters of the host computer. The default serial parameters for the SG20B are: 57600 baud, 8 data bits, no parity, and 1 stop bit. |
| You cannot establish a direct Bluetooth connection with your scanner. | There might be a problem with your host Bluetooth interface. Try disabling then enabling your host Bluetooth radio from the **Device Manager**. |
| You cannot charge your scanner or establish a Bluetooth connection with the SG20 Bluetooth Base Station. | There might be a problem with your Bluetooth Base station connection. This is indicated by a blinking of the SG20 Bluetooth Base Station blue Intermec Ready-to-Work indicator.<br>Make sure the SG20 Bluetooth Base Station is properly connected to your host (see **"SG20 Bluetooth Base Station Recommended Connections" on page 23**). |
| Your scanner is unresponsive. | Try to reset it electrically by pushing the reset button (see **"Reset the SG20B Scanner" on page 82**). |

***Problems and Possible Solutions (continued)***

| Problem | Possible Solution |
|---|---|
| You cannot scan the Firmware upgrade bar code on your computer screen. | Print out this bar code and scan it:<br>Firmware upgrade<br>  |

# Call Product Support

To talk to an Intermec Product Support representative:

- In the U.S.A. and Canada, call **1-800-755-5505**
- Outside the U.S.A. and Canada, contact your local Intermec representative. For help, go to **www.intermec.com** > **About Us** > **Contact Us**.

Before you call Intermec Product Support, make sure you have the following information:

- SG20B and/or SG20 Bluetooth Base Station firmware version
- SG20B decode version

### To get the firmware version and decode version

1. Run an application that can accept bar code information from the SG20B:
   - If you are using a USB Keyboard HID or keyboard wedge interface for your SG20 Bluetooth Base Station or if your SG20B scanner is connected to a Bluetooth device with the HID Bluetooth profile, use Microsoft® Notepad.
   - If you are using an RS-232 or USB Virtual Com interface for your SG20 Bluetooth Base Station or if your SG20B scanner is connected to a Bluetooth device with the SPP Bluetooth profile, use the EasySet ISCP Terminal window (see **"Configure Your System with EasySet" on page 47**).

**2** Scan one of these bar codes:

Get firmware version - Scanner

Get decode version - Scanner

Get firmware version - Bluetooth Base station

# Upgrade the Firmware

You may need to upgrade the firmware if there is an update that incorporates changes to a feature or adds functionality to the product. When you upgrade your product the current settings are erased and replaced with the default settings.

## Download the Latest Firmware

You must download the latest firmware upgrade from the Intermec web site at **www.intermec.com**.

**3** Go to **Support** > **Downloads**.

**4** From the **Product Category** drop-down list, choose **Bar Code Scanners.**

**5** From the **Product Family** drop-down list, choose **General Duty Scanners**

**6** From the **Product** drop-down list, choose your SG20 product and click **Submit**.

**7** Click the link to download the firmware upgrade package and save firmware upgrade file (.bin) to your PC.

# Upgrade Scanner Firmware via the Base Station

If your scanner is connected as a system to the SG20 base station, the easiest way to upgrade the firmware of the scanner is through the base station. After a firmware upgrade you will need to re-establish the connection between the scanner and base station.

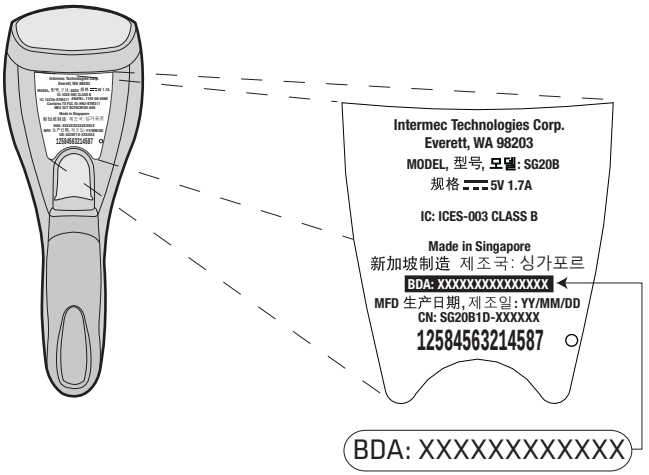
**Note:** Firmware upgrade of the scanner via the base station is only available with base station firmware version ST2L301_ or later.

To upgrade the SG20 Bluetooth Base Station you need:

- a USB or RS-232 cable and power supply if necessary.
- a host PC running Microsoft® Windows® XP with SP2 or Microsoft Windows 2000 with SP4 or a more recent version of Windows.
- EasySet version 5.6.5.8 or later.
- The firmware update file (.bin).

### To upgrade the scanner firmware via the base station

1. Connect the base station to the host (see **"Connect the SG20 Bluetooth Base Station to a Host" on page 28**
2. Note the scanner's Bluetooth device address (BDA).




*SG20B Bluetooth Device Address*

If for some reason you cannot find the BDA on the product label, you can read the following bar code to retrieve the information from the scanner. Make sure you scanner is connected to the base station and you have an application open that can accept bar code data.

Get scanner Bluetooth device address

3 Start the latest version of EasySet.

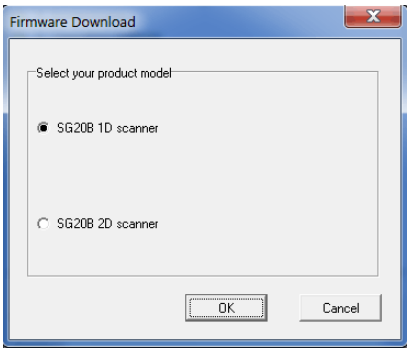
4 From the **Tools** menu, select **Upgrade product firmware** to start WinFlash.

If WinFlash is not already installed you will be asked to install it - click **Yes** and follow the installation instructions.

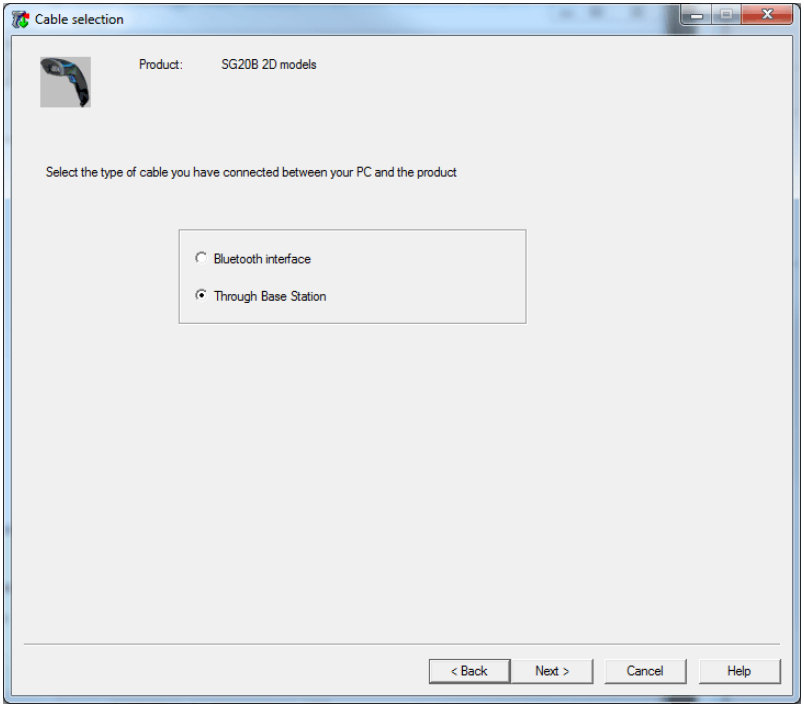
If you are connected to EasySet for online setup, a message will ask if you want to quit online setup mode and start WinFlash.exe. Click **Yes** to continue. If you have a scanner connected to the base station, the base disconnects (the blue Intermec Ready-to-Work indicator goes off) and then restarts (2 beeps one green flash). The scanner will then reconnect with the base.

**Note:** The scanner does not have to be connected to the base station to perform firmware upgrade via the base station.

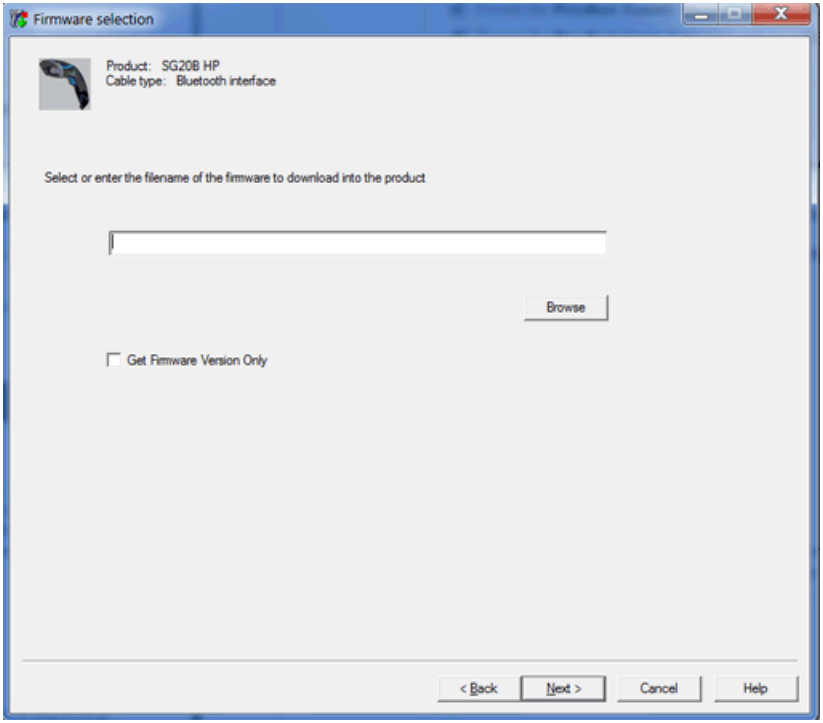
5 Select your product model and click **OK**.



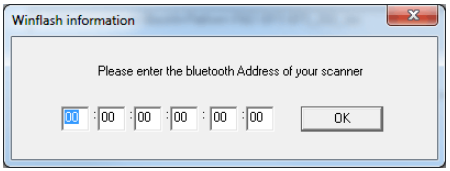
6 Select **Through Base Station** in the cable selection window. Click **Next**.



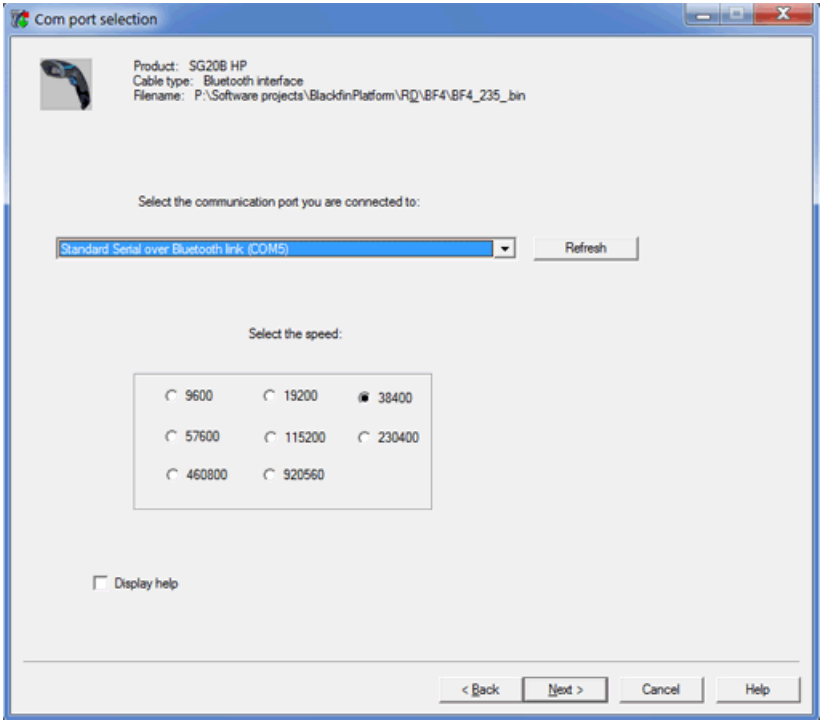
**7** Click **Browse** to find the correct **.bin** firmware upgrade file you downloaded for your product model and click **Next**.



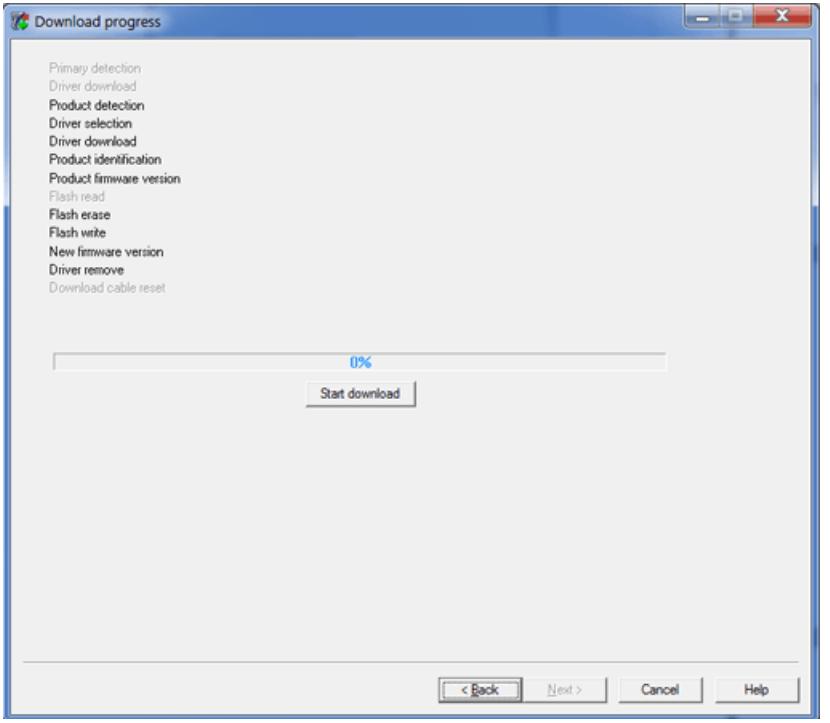

**8** Enter the Bluetooth address of the scanner you want to upgrade. Click **OK**.



**9** In the drop down list, select the communication port you are connected to (base). Click **Next.**



**10** Click **Start download**.




The scanner disconnects from the base station and starts blinking red. The base station status light blinks blue. This indicates they are preparing for firmware download. When the download starts, the scanner status light blinks slower red and the base station's status light stays on dimmed blue until the process is finished.

**Note:** Some scanners may not blink red (older bootloader version) however the firmware download does take place. Follow the indications on the screen in WinFlash.

When finished, pull the trigger, the scanner emits a series of beeps and the status light flashes green to indicate a successful download. The base station and scanner restart.

You will need to re-establish a Bluetooth connection between the scanner and the base.

11 Click **Finish**. You have successfully upgraded your scanner's firmware.

If the firmware download is not successful, see **"Scanner Recovery in Firmware download" on page 81**.

## Upgrade the Base Station Firmware

To upgrade the SG20 Bluetooth Base Station you need:

- a USB or RS-232 cable and power supply if necessary.
- a host PC running Microsoft® Windows® XP with SP2 or Microsoft Windows 2000 with SP4 or a more recent version of Windows.
- EasySet version 5.6.5.4 or later.
- The firmware update file (.bin).

**Note:** Before you start the upgrade process, make sure that you are not using the selected COM port for any other application or you receive an error and cannot use the COM port.

### To upgrade the base station firmware

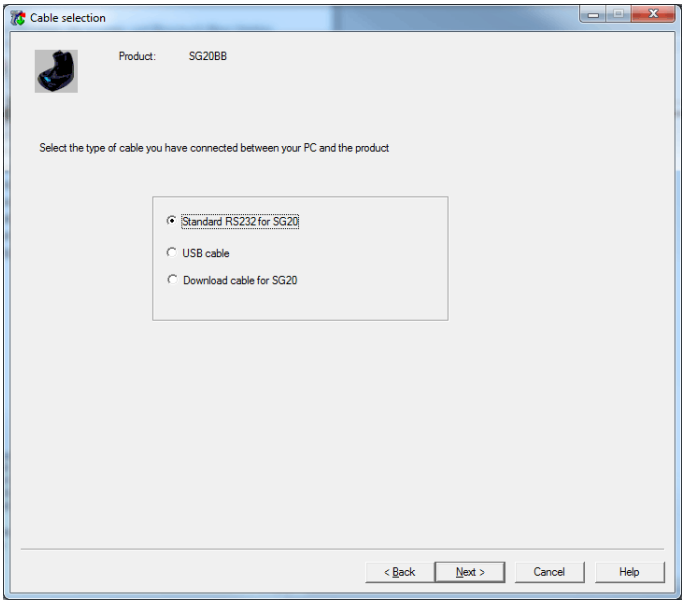
1 Connect your base station to the host.

2 Start the latest version of EasySet. Make sure that SG20BSYS is selected as your product.

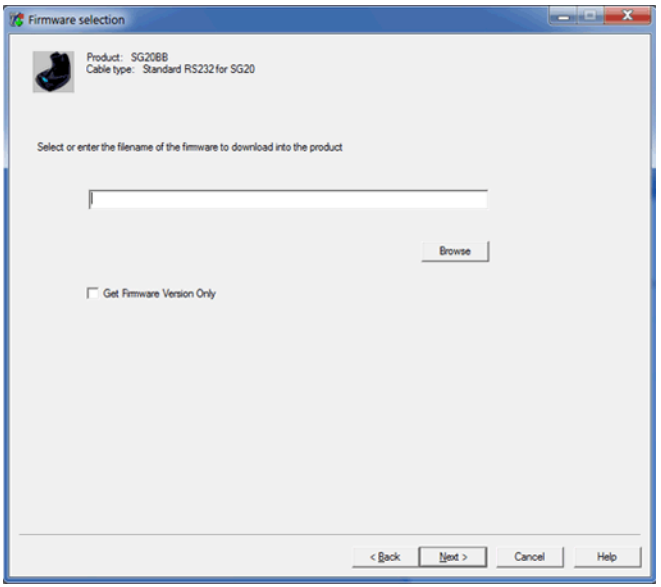
3 From the **Tools** menu, select **Upgrade product firmware** to start WinFlash.

4 If WinFlash is not already installed or if a more recent version is available you will be asked to install it. Click **Yes** and follow the installation instructions. After installing WinFlash, start WinFlash from the **Tools** menu, select **Upgrade product firmware.**

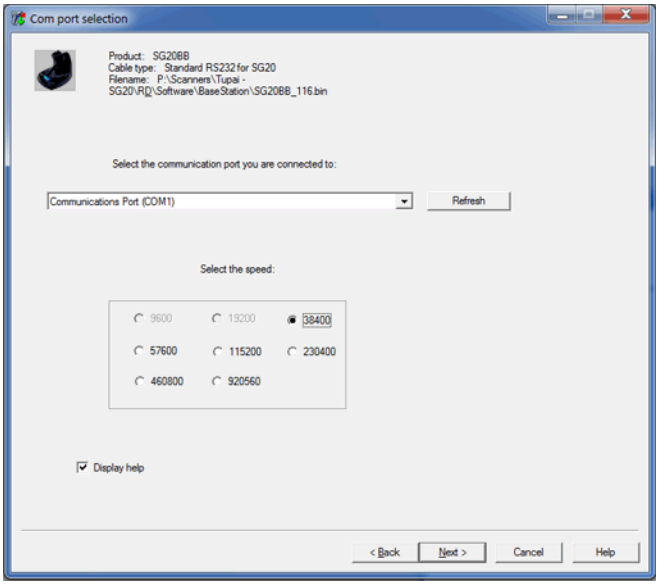
**5** Select the cable you are using and click **Next**.



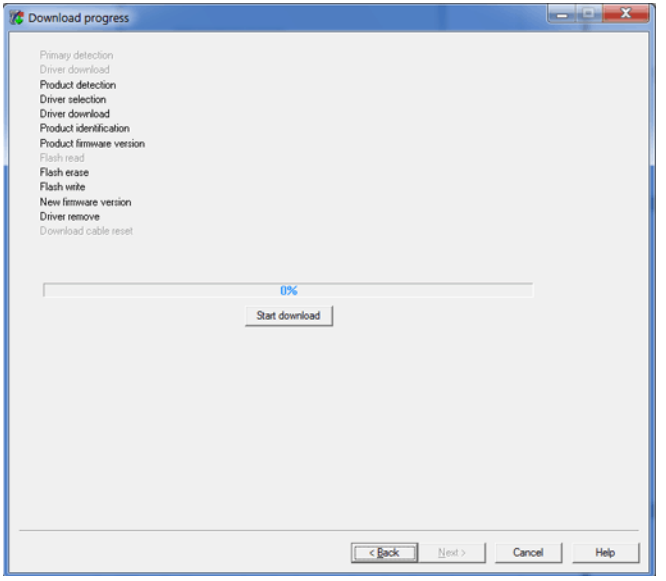

**6** Use **Browse** to browse to the location of the firmware upgrade file (.bin), select the file, and click **Open**. Click **Next**.



**7** Select the Com port and parameters. Click **Next**.




**8** Click **Start download**.



When the firmware download is complete, the "Operation successful" message appears.

9 Click **Finish**. You have successfully upgraded your SG20 base station firmware.

If the firmware download is not successful, see **"Scanner Recovery in Firmware download" on page 81**.

# Upgrade the Scanner Firmware in Direct Connection

To upgrade the scanner in direct connection you need:

- a Bluetooth connection with a Bluetooth enabled host (internal Bluetooth controller or external Bluetooth adapter).
- a host PC running Microsoft® Windows® XP with SP2 or Microsoft Windows 2000 with SP4 or a more recent version of Microsoft Windows.
- EasySet version 5.6.5.4 or later.
- The firmware update file (.bin).

**Note:** Before you start the upgrade process, make sure that you are not using the selected COM port for any other application or you receive an error and cannot use the COM port.

## Prepare the Scanner for Firmware Upgrade

To upgrade the firmware your scanner must be paired with the host device in SPP and not connected. You cannot upgrade the firmware if you are paired with the host device in HID profile.

### To prepare the scanner for firmware upgrade in direct connection

1 Reset factory defaults for a clean start. This will disconnect any Bluetooth connections and set your scanner device profile to SPP.

Reset factory defaults

2 If your host outgoing port is open, close it.

3. If your scanner is paired as an HID Bluetooth device, remove it from your host Bluetooth devices list (click on the Bluetooth icon on your task bar to see the list).
4. Pair your scanner as an SPP Bluetooth device using the procedure **"Pair the scanner with your device:" on page 53**. If your scanner is already paired go to the next step.
5. Note the outgoing COM port for your scanner.

   You can find this in the properties of your device on the Bluetooth device list (click on the Bluetooth icon on your task bar to see the list). You will need this information later during firmware upgrade.

Your scanner is now paired in SPP, not connected and ready for the firmware upgrade.

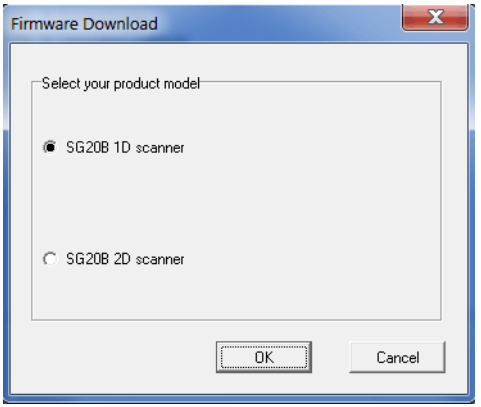
## Upgrade the Scanner Firmware

Use WinFlash to upgrade the SG20B firmware. If WinFlash is not already installed you can install it from EasySet.

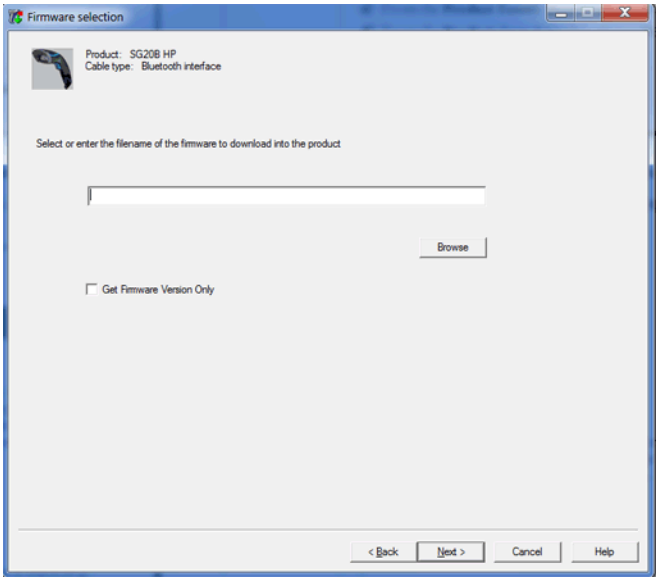
### To upgrade the scanner firmware in direct connection

1. Start the latest version of EasySet. Make sure SG20B is selected as your product.
2. From the **Tools** menu, select **Upgrade product firmware** to start WinFlash.
3. If WinFlash is not already installed or if a more recent version is available you will be asked to install it. Click **Yes** and follow the installation instructions. After installing WinFlash, start WinFlash from the **Tools** menu, select **Upgrade product firmware.**

**4** Select SG20B 1D scanner or SG20B 2D scanner and click **Next**.




**5** Use **Browse** to browse to the location of the firmware upgrade file (.bin), select the file, and click **Open**. Click **Next**.

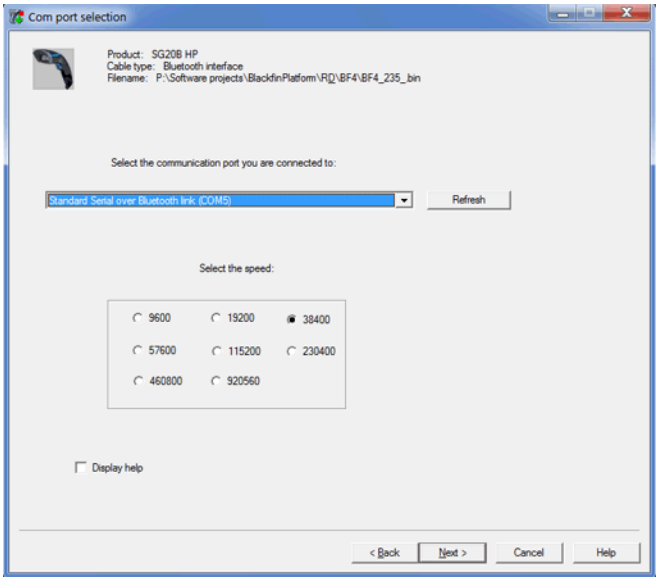


6 Read the firmware upgrade bar code on the screen. Click **OK** when the Firmware upgrade bar code appears.

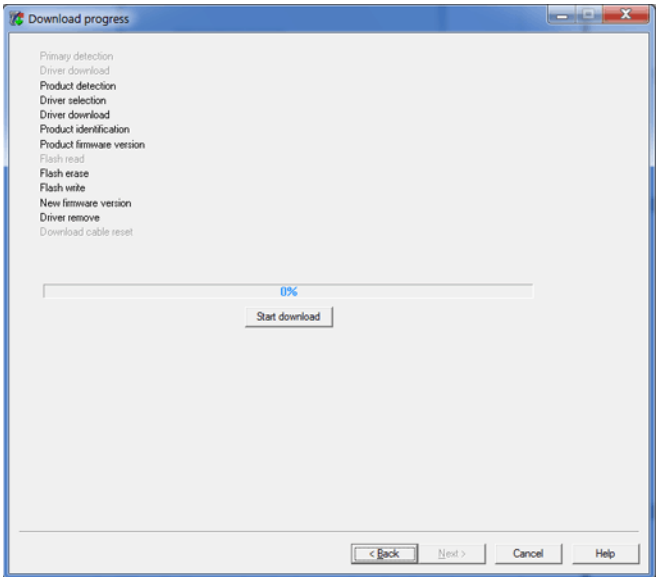
If you can't read it on the screen print this out and read it.

Firmware upgrade

7 Select the outgoing Com port that was noted earlier while preparing the scanner for firmware upgrade. Click **Next**.



8 Click **Start download**.




The scanner starts blinking red to indicate that it is preparing for firmware download. When the download starts, the scanner status light blinks slower red until the process is finished.

**Note:** Some scanners may not blink red (older bootloader version) however the firmware download does take place. Follow the indications on the screen in WinFlash.

When the firmware download is complete, the "Operation successful" message appears.

9 Click **Finish**. You have successfully upgraded your scanner firmware.

If the firmware download is not successful, see **"Scanner Recovery in Firmware download" on page 81**.

## Scanner Recovery in Firmware download

If the firmware download is not successful follow this procedure before starting a new firmware download:

### To recover from an unsuccessful firmware download

1. Reset the scanner using the reset button (see **"Reset the SG20B Scanner" on page 82**).
2. Press the trigger to turn on the scanner.
3. Restart the base station (if applicable): Unplug the power supply then plug it back in.
4. Put the scanner in it's charger (charge base or Bluetooth base station).
5. Restart the firmware download procedure.

# Clean the SG20B

Clean the scanner window as often as needed for the environment in which you are using the SG20B. To clean the scanner window, you can use soapy water or isopropyl alcohol.


**Opening the SG20B may cause damage to the internal components.**

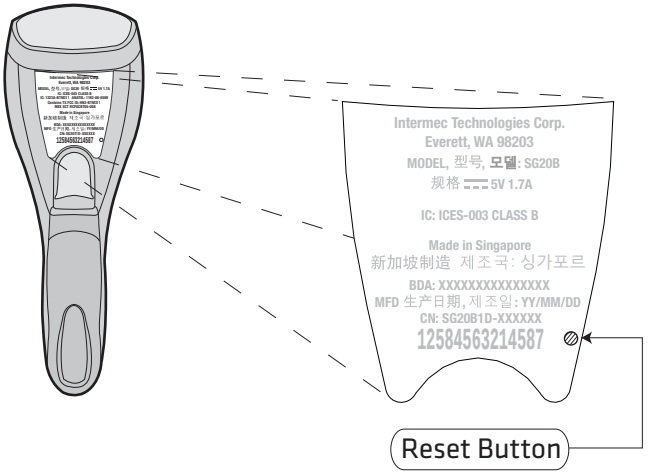
### To clean the scanner window

1. Dip a clean towel or rag in soapy water or isopropyl alcohol and wring out the excess. Wipe the scanner window. Do not allow any abrasive material to touch the window.
2. Wipe dry with a lint-free cloth.

# Reset the SG20B Scanner

If your scanner becomes unresponsive, you can manually reset it by inserting a pin in the reset hole and pushing the reset button.

After a manual reset, your scanner is still configured as it was before, current parameters are not reset.




# Replace the SG20B Scanner Battery

If your scanner flashes a battery fault signal (blinking amber LED), it is possible to order a new battery pack (P/N BP-SG20-xxx) and replace the defective battery by the new one.

**Note:** Intermec recommends that the battery be changed by a certified technician.

Always fully charge a new battery in your SG20B scanner before using it. Batteries can be charged after a partial discharge without affecting the original battery capacity. A fully discharged battery charges in approximately 3 hours.

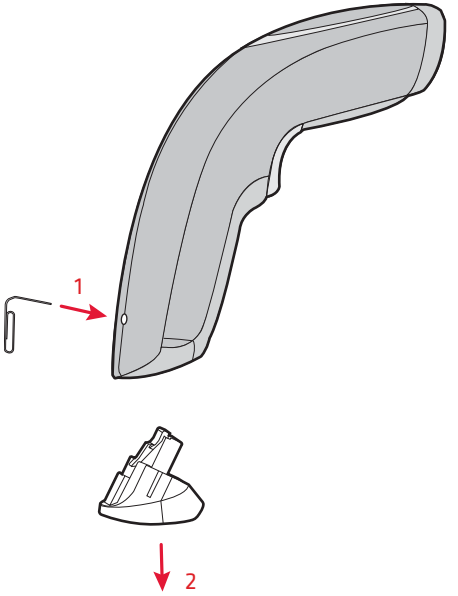
You can charge the battery with one of these accessories:

- SG20B Charge Base (P/N CB-SG20-xxx)
- SG20 Bluetooth Base Station (P/N BB-SG20-xxx)

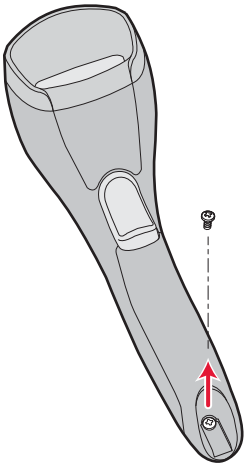

**Integrated circuits on printed circuit boards (PCBs) in this equipment are sensitive to damage by electrostatic discharge (ESD). Prevent ESD by always wearing skin contact ground straps firmly attached to the equipment metal Bluetooth Base assembly when working inside of the equipment housing. Failure to comply may result in damage to PCB components.**

### To replace the SG20B battery

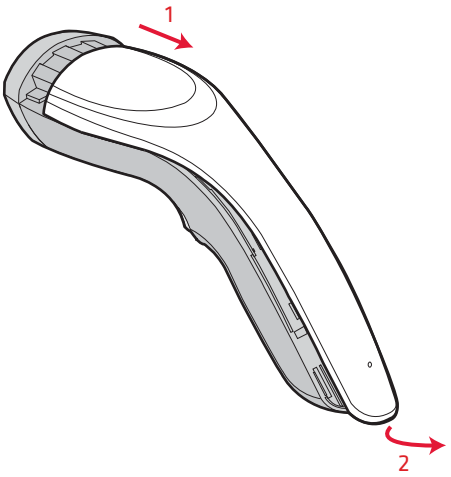
**1** Remove the cap end from the bottom of the SG20B using a pin.



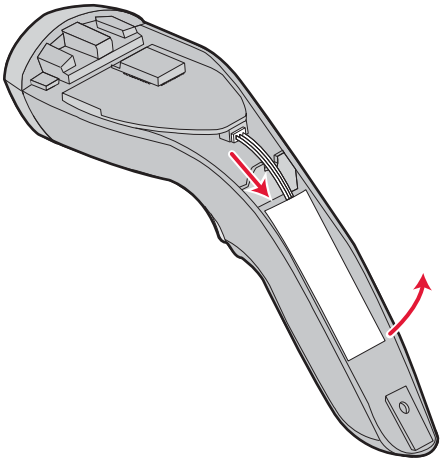
**2** Loosen and remove the screw holding the upper case.



**3** Slide the upper case back and remove it.



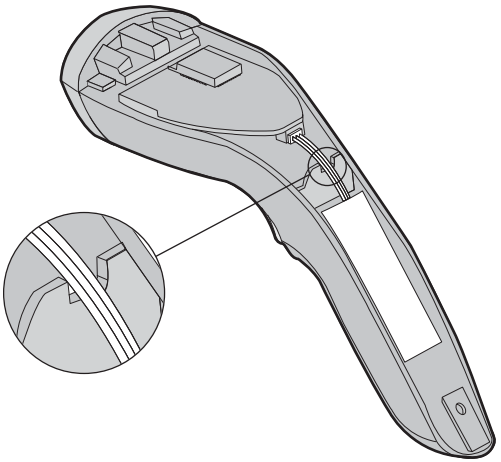
4 Hold the PCB firmly so it does not bend while you disconnect the battery cable and remove the battery.



5 Install the new battery.

6 Place the battery in its compartment and connect the battery cable.

7 Make sure cables are properly passed through the notch so they are not pinched and cut while you slide the upper case back in place.



8 Install the upper case screw, tighten to 0.68 Nm (6 in-lb) and clip the cap end back into the scanner.

# A

# Specifications and Reading Distances

This appendix contains the technical specifications of the scanner and base station as well as reading distances for each scanner model.

# Specifications

Use this section to find technical information about the cordless SG20B scanner.

| Physical Dimensions | |
|---|---|
| Length | 20.3 cm (8 in) |
| Height | 6.5 cm (2.6 in) |
| Width | 6.1 cm (2.4 in) |
| Weight | 175 g (6.2 oz) |

| Power and Electrical Specifications | |
|---|---|
| Operating | Rechargeable lithium-ion battery (1567 mAh) |
| Electrical rating | ⎓ 5V, 1.7 A |

| Temperature and Environmental Specifications | |
|---|---|
| Operating temperature | 0°C to 50°C (32°F to 122°F) |
| Storage temperature | -20°C to 60°C (-4°F to 140°F) |
| Relative humidity | 5 to 95% non-condensing |
| Shock | 30 G, 11 ms half-sine, 3 directions |
| Vibrations | 8G, from 10Hz to 500Hz, 2hr/axis, 3 axes |
| Environmental rating | IP30 |
| Ambient light | 0 to 100 000 lux |
| Artificial light | 25 000 lux |

| **Scanning Performance** | |
|---|---|
| SG20B1D | Scan angle: 38° |
| | Minimum X dimension: 4mils (0.1 mm) |
| SG20B2D, SG20B2DHC | Scan angles: 39° horizontal, 25.5° vertical |
| | Min. X dimension 1D: 4 mils (0.1 mm)<br>Min. X dimension 2D: 6.6 mils (0.17 mm) |
| SG20BHP, SG20BHPHC | Scan angles: 34.4° horizontal, 22.2° vertical<br>Framing angles: 30° horizontal, 20° vertical |
| | Min. X dimension 1D: 4 mils (0.1 mm)<br>Min. X dimension 2D: 6.6 mils (0.17 mm) |

| **Bluetooth Radio** | |
|---|---|
| Radio Type | Bluetooth Class 2 version 2.1 + EDR |
| Frequency | 2400 - 2483.5 MHz |
| Radio Data Rate | 2 Mbits/s |

| **Communication Range** | |
|---|---|
| Host radio Class 2 | 10 m (32.8 ft) |
| Features | Adaptive Frequency Hopping (AFH) |

| **Bar Code Symbologies for 2D Models (SG20BHP, SG20BHPHC)** | |
|---|---|
| Australian Post | Infomail |
| Aztec | Intelligent mail |
| BPO | Interleaved 2 of 5 |
| Canada Post | Japan Post |
| Codabar | Matrix 2 of 5 |
| Codablock A | Maxicode |
| Codablock F | Micro PDF417 |
| Code 11 | MSI |

| Bar Code Symbologies for 2D Models (SG20BHP, SG20BHPHC) (continued) | |
|---|---|
| Code 39 | Multicode |
| Code 93/93i | PDF417 |
| Code 128 / GS1-128 | Planet |
| DataMatrix | Plessey |
| Dutch Post | Postnet |
| EAN/UPC | QR Code |
| GS1 Composite (linear only) | Standard 2 of 5 |
| GS1 DataBar Expanded | Sweden Post |
| GS1 DataBar Limited | Telepen |
| GS1 DataBar Omni-Directional | TLC 39 |
| GS1 DataBar Stacked | |

| Bar Code Symbologies for 1D Model (SG20B1D) | |
|---|---|
| Codabar | GS1 DataBar Limited |
| Code 11 | GS1 DataBar Omni-Directional |
| Code 39 | Interleaved 2 of 5 |
| Code 93/93i | Matrix 2 of 5 |
| Code 128 / GS1-128 | MSI |
| EAN/UPC | Plessey |
| GS1 Composite | Standard 2 of 5 |
| GS1 DataBar Expanded | Telepen |

# Base Station Specifications

Use this section to find technical information about the SG20 Base Station (SG20BS).

| **Physical Dimensions** | |
|---|---|
| Length | 13.1 cm (5.2 in) |
| Height | 9.9 cm (3.9 in) |
| Width | 10.6 cm (4.2 in) |
| Weight | 280 g (9.88 oz) |

| **Interfaces** |
|---|
| RS-232, USB (HID and VCP), Keyboard Wedge |

| **Electrical Specifications** | |
|---|---|
| Operating voltage | ⎓ 5V ± 10% |
| Operating current | 90 mA |
| Maximum current (fully discharged scanner) | USB = 0.5 A @ 5 V<br>RS-232 = 1.2 A @ 5 V |

| **Temperature and Environmental Specifications** | |
|---|---|
| Operating temperature | 0°C to 50°C (32°F to 122°F) |
| Operating temperature (when charging) | 0°C to 40°C (32°F to 104°F) |
| Storage temperature | -20°C to 60°C (-4°F to 140°F) |
| Relative humidity | 5 to 95% non-condensing |
| Shock | 30 G, 11 ms half-sine, 3 directions |
| Vibrations | 8G, from 10Hz to 500Hz, 2hr/axis, 3 axes |

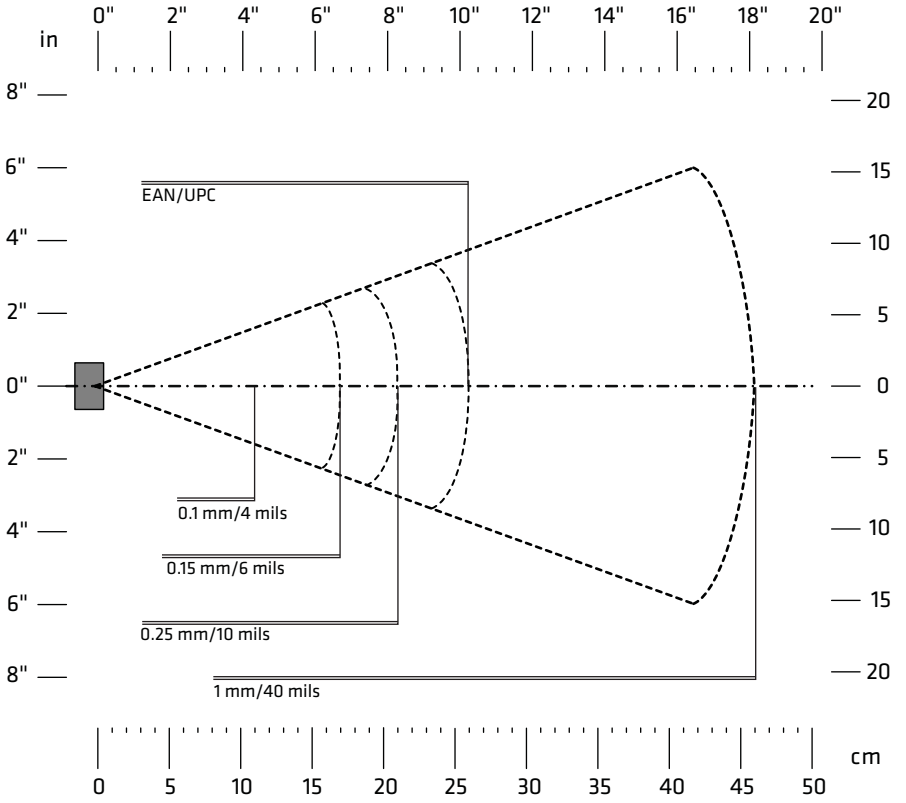
| **Bluetooth Radio** | |
|---|---|
| Radio Type | Bluetooth Class 2 version 2.1 + EDR |
| Frequency | 2400 - 2483.5 MHz |

| **Certifications** |
|---|
| UL, cUL, FCC, IP30 |

# Reading Distances

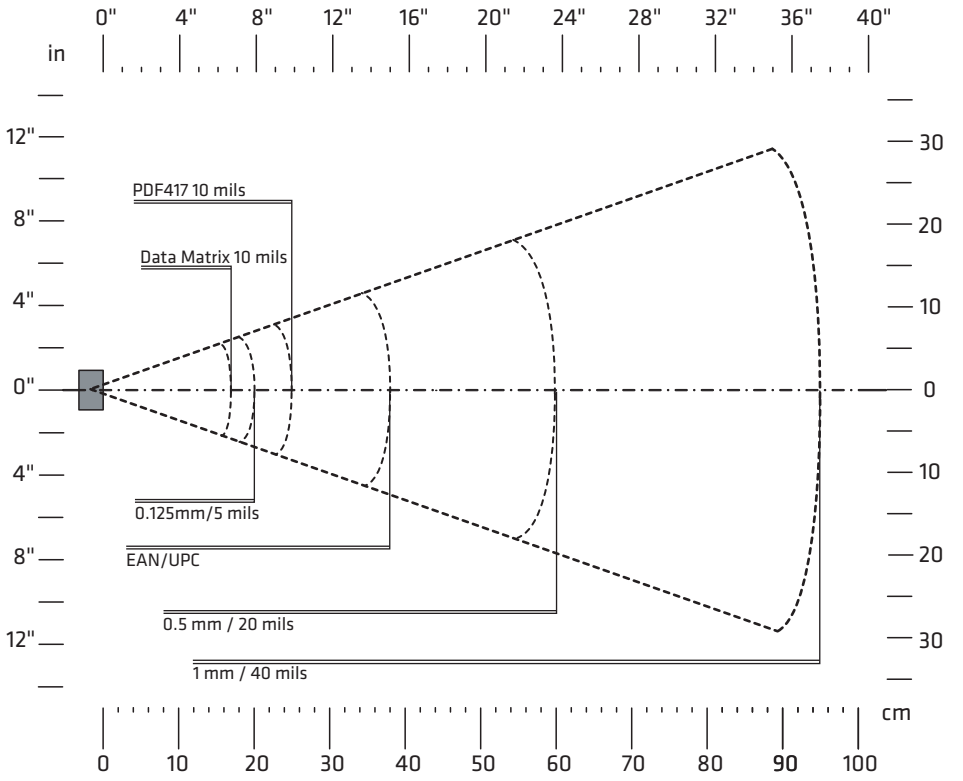
The reading distances for each scanner are typical distances measured from the front end of the scanner bezel in an office environment (200 lux) with extended reading range activated (except for 1D model). Extended reading range is available with software version BF4_254 and later.

# SG20B1D



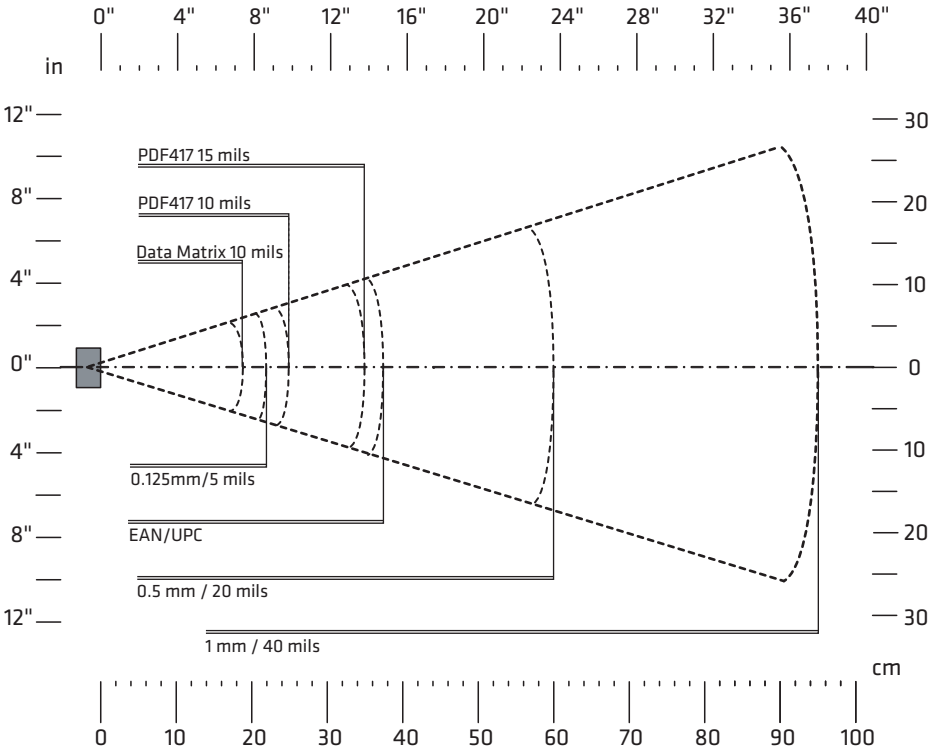

| Symbology | Density | Minimum Distance | Maximum Distance |
|---|---|---|---|
| Code 39 | 0.1 mm (4 mils) | 5.5 cm (2.17 in) | 11 cm (4.33 in) |
| | 0.15 mm (6 mils) | 4.5 cm (1.77 in) | 17 cm (6.69 in) |
| | 0.25 mm (10 mils) | 3 cm (1.18 in) | 21 cm (8.26 in) |
| | 1 mm (40 mils) | 8 cm (3.15 in) | 46 cm (18.11 in) |
| EAN/UPC | 0.33 mm (13 mils) | 3 cm (1.18 in) | 25 cm (9.84 in) |

# SG20B2D, SG20B2DHC




| Symbology | Density | Minimum Distance | Maximum Distance |
|---|---|---|---|
| Code 39 | 0.1 mm (4 mils) | 3.5 cm (1.38 in) | 15.5 cm (6.10 in) |
| | 0.125 mm (5 mils) | 2 cm (0.79 in) | 20 cm (7.87 in) |
| | 0.5 mm (20 mils) | 4 cm (1.57 in) | 60 cm (23.62 in) |
| | 1 mm (40 mils) | 11 cm (4.33 in) | 95 cm (37.40 in) |
| EAN/UPC | 0.33 mm (13 mils) | 3 cm (1.18 in) | 38 cm (14.96 in) |
| PDF417 | 0.25 mm (10 mils) | 2 cm (0.79 in) | 25 cm (9.84 in) |
| | 0.38 (15 mils) | 3 cm (1.18 in) | 35 cm (13.78 in) |
| DataMatrix | .025 mm (10 mils) | 3 cm (1.18 in) | 17 cm (6.69 in) |

# SG20BHP, SG20BHPHC




| Symbology | Density | Minimum Distance | Maximum Distance |
|---|---|---|---|
| Code 39 | 0.1 mm (4 mils) | 4.5 cm (1.77 in) | 16.5 cm (6.50 in) |
| | 0.125 mm (5 mils) | 4 cm (1.57 in) | 22 cm (8.66 in) |
| | 0.5 mm (20 mils) | 5 cm (1.97 in) | 60 cm (23.62 in) |
| | 1 mm (40 mils) | 12 cm (4.72 in) | 95 cm (37.40 in) |
| EAN/UPC | 0.33 mm (13 mils) | 3.5 cm (1.38 in) | 37.5 cm (14.76 in) |
| PDF417 | 0.25 mm (10 mils) | 3 cm (1.18 in) | 25 cm (9.84 in) |
| | 0.38 (15 mils) | 3 cm (1.18 in) | 35 cm (13.78 in) |
| DataMatrix | .025 mm (10 mils) | 3 cm (1.18 in) | 19 cm (7.48 in) |

# B

# Optimizing Scanner Performance

This appendix provides a selection of configuration bar codes that may help to optimize decoding in specific situations and environments. You will also find in this appendix bar codes for hands-free scanning.

All default values are marked with (*).

# Optimizing Decoding

Use the following barcodes to optimize your scanner reading performance.

**Note:** These configuration bar codes are only for the SG20BHP and SG20BHPHC models.

## Damaged 1-Dimensional Bar Codes

If you are reading 1D bar codes that are damaged or badly printed, enable this setting to enhance the ability to read these types of bar codes.

Damaged 1D Codes - Enable

Damaged 1D Codes - Disable (*)

## Predefined Imager Modes

When using a 2D model (SG20BHP or SG20BHPHC), you can optimize the reading performance of the scanner by adjusting certain parameters. Since there are many parameters that can be adjusted, we recommend using the pre-defined imager settings to quickly set up your imager for optimized reading. The pre-defined imager settings take in to account the type of bar code, environment and reading surface.

There are 4 pre-defined imager settings:

- 1-Dimensional bar codes only
- Standard 1-dimensional and 2-dimensional bar codes
- 1-Dimensional and 2-dimensional bar codes in a bright environment
- 1-Dimensional and 2-dimensional bar codes with reflective surface (shiny labels and cell phone scanning)

Select the pre-defined imager setting that best suits your needs:

1D bar codes only

Standard 1D and 2D bar codes (*)

Standard 1D and 2D bar codes, bright environment

Standard 1D and 2D bar codes, reflective surface

# Hands-Free Scanning

For hands-free scanning as explained in **"Hands-Free Scanning" on page 9** activate Autostand triggering mode by scanning this configuration bar code:

Autostand Triggering Mode

Intermec
by Honeywell
6001 36th Avenue West
Everett, Washington 98203
U.S.A.
tel 425.348.2600
fax 425.355.9551
www.intermec.com


SG20B Cordless Scanner + Bluetooth Base Station User's Guide

DOC-SG20B-UG03