Encompass® 1 Handheld Reader Quick Start Guide

The Encompass 1 Handheld Reader combines the TransCore Encompass 1 RFID Scan Handle and the Intermec Model 700 Color Mobile Computer (model 741, 751, or 761 only). This document describes procedures to set up and read tags using TransCore's Encompass 1 Portable RFID Scan Handle with Intermec's Model 700 Color Mobile Computer.

This guide does not contain detailed user instructions for the mobile computer, those are covered in the Intermec 700 Color Mobile Computer guides.

Before Getting Started

TransCore's Encompass 1 Handheld Reader is designed to read American Trucking Associations (ATA) tags, Wiegand-programmed tags, and TransCore eGo® tags.[1] The TransCore Encompass 1 RFID Scan Handle component (P/N 10-0700-002) is identified by the TransCore logo on the faceplate (Figure 1).

Figure 1 Encompass 1 RFID Scan Handle Showing TransCore Logo

Note: If your Encompass 1 Scan Handle is not identified by the TransCore logo on its faceplate, you will not be able to read ATA, Wiegand, or TransCore eGo tags.

Handheld Reader Setup Instructions

To set up the basic Encompass 1 Handheld Reader, you will need the following items:

- TransCore Encompass 1 Portable 915-MHz Scan Handle with battery

- Intermec 700 Color Mobile Computer (model 741, 751, or 761 only)

- TagReader Demo software program loaded in the Intermec 700 Mobile Computer

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1. eGo tags are fully compliant with the American National Standards Institute INCITS 256-2001 and International Organization for Standardization 18000-6 standards.

- Two #6-32 handle-to-computer retaining screws. These screws are located in the scan handle box in an accessories packet.

- Slotted-head screwdriver and Phillips-head screwdriver

- Scan handle battery pack charger with universal AC adapter and power cord

- 700 Color Mobile Computer single dock/charging station with universal AC adapter and power cord

Installing and Removing the Scan Handle Battery Pack

Before you can use the scan handle, you must charge its battery. The charging process takes approximately four hours.

To remove the battery pack

Push the battery release latch forward and remove the battery pack from the handle (Figure 2).
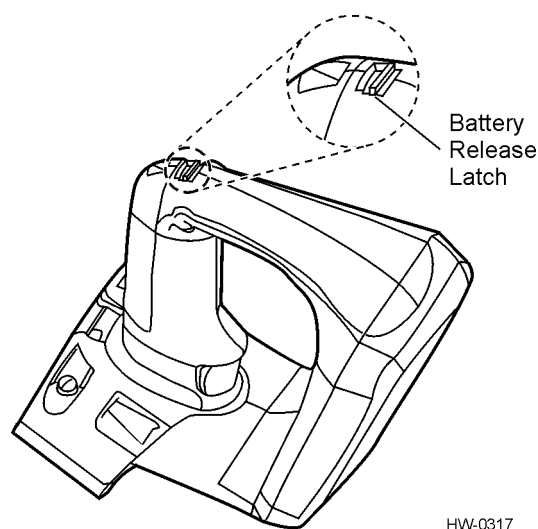

Battery
Release
Latch

HW-0317

Figure 2 Location of Battery Release Latch on Scan Handle

To re-install the battery into the scan handle

The tab at the top of the battery pack fits into the notch in the compartment (Figure 3). Insert the battery (tilt to fit into notch) into the compartment opening and press in until the latch on the bottom of the battery snaps closed.
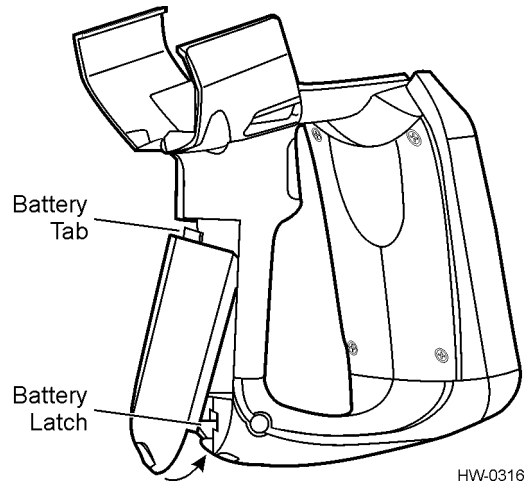
Battery
Tab

Battery
Latch

HW-0316

Figure 3 Reinserting Battery Pack into Scan Handle

Charging the Scan Handle Battery Pack

The Model Encompass 1 Dual Pack Charger (TransCore P/N 76-0700-002) is suitable for use only with TransCore battery pack (P/N 76-0700-001).

Caution
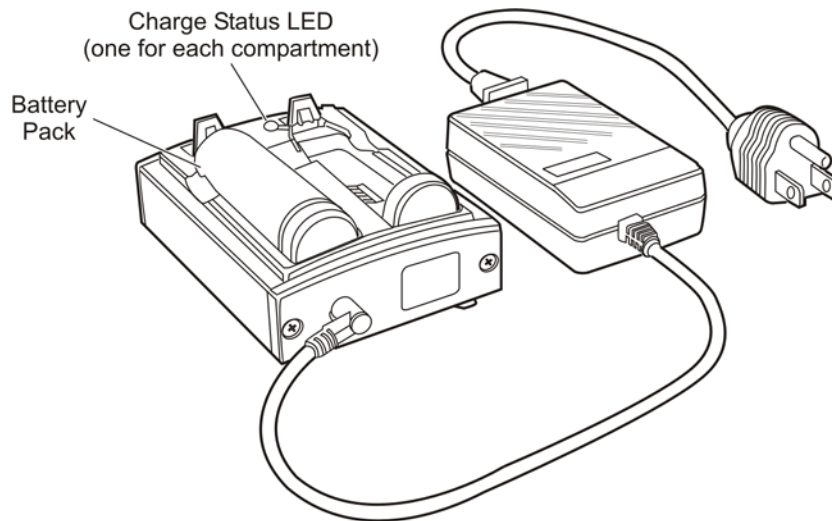*Use of any other battery pack may present risk of fire or explosion hazard.*

Each charger power supply uses approximately 0.5 amps of current.

To charge the battery pack(s)

1. Plug power supply into 110V AC outlet and then connect power supply to charger.

2. Tilt battery pack into position and slip battery pack under lip of charger in compartment. Battery pack tab fits into notch in charger (Figure 4).

Note: Battery pack must be inserted as shown in Figure 4.

3. Push battery pack down and into place.

4. Charge battery pack for four hours.

Charge Status LED
(one for each compartment)

Battery
Pack

HW-0309

Figure 4 Scan Handle Dual Battery Pack Charger

Charging-Status Light-Emitting Diode Indicators

There is one charge status light-emitting diode (LED) for each compartment. The charger LED indicators are as follows:

- Off – Battery not inserted properly, no battery installed, or battery completely run down. The LED remains off until the battery reaches an initial charge capacity of 5%.

- Red – Battery is charging.

- Green – Battery charge is complete.

- Blinking red – pack may not be installed in compartment properly, or pack may be faulty. If pack is installed improperly, remove and reinsert it. If battery has been charging for five hours and the charger LED switches from solid red to blinking red, the pack is faulty and should be replaced.

The LED may flicker as it advances from one charge state to another. When battery is fully charged, remove it from the charger compartment.

Note: TransCore recommends that you charge the scan handle battery pack after each shift.

Charging the 700 Color Mobile Computer Battery Pack

Before using the scan handle with the color mobile computer, you need to charge the mobile computer battery using the 700 Color Mobile Computer Single Dock/Charger station.

To charge the mobile computer battery pack using the single dock station

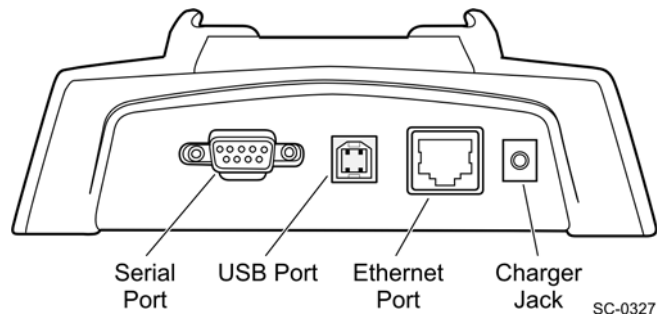1.   Connect power supply unit plug to the single docking station jack (Figure 5).

Figure 5 Single Dock Station Rear Panel

2.   Insert the mobile computer onto the computer docking connector (Figure 6).
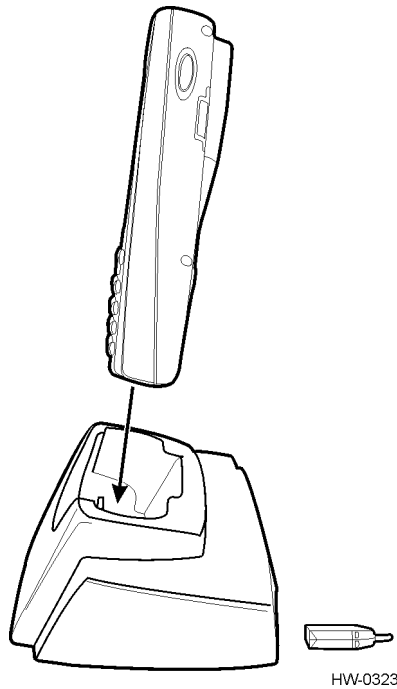

Figure 6 Mobile Computer and Single Dock Station

Note: The TagReader Demo software will not operate without a charged battery in the 700 Color Mobile Computer. Do not proceed if the battery is not fully charged.
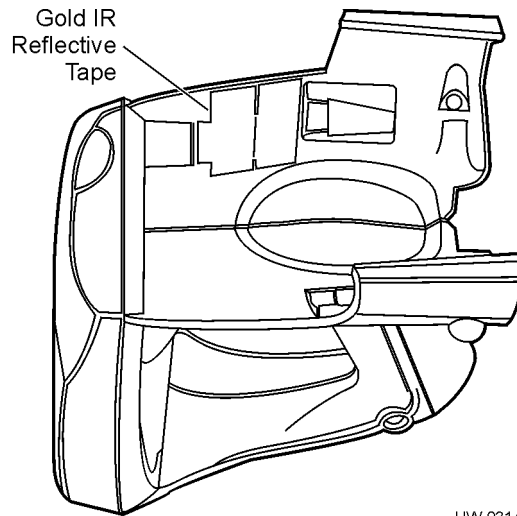
Connecting the Scan Handle to the 700 Color Mobile Computer

⚠ CAUTION

Caution
DO NOT remove the gold reflective tape from the inside of the scan handle. This reflective tape aids in infrared data association (IrDA) signal communication between the scan handle and the mobile computer. Your scan handle kit may contain additional reflective tape strips and instructions showing the locations where you should mount the strips.

The mobile computer communicates with the scan handle via IrDA (Figure 7). Therefore, the IrDA signal passing from the scan handle must meet with the IrDA window on the mobile computer and must create an acceptable connection.
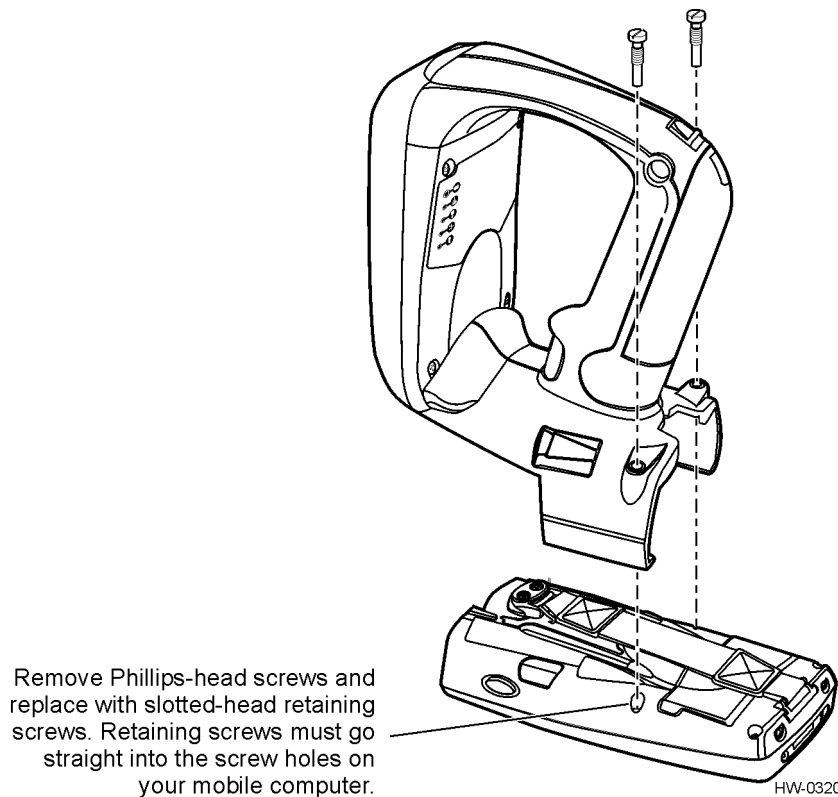

Figure 7 Location of Gold IrDA Reflective Tape in Scan Handle

To connect the scan handle and mobile computer

1. Remove two Phillips-head screws from the mobile computer shown in Figure 8. Keep the Phillips-head screws handy in case you need to re-install them later. Slide the Intermec 700 Color Mobile Computer into your scan handle. Ensure that the computer slides all the way into the scan handle. You will hear a click when you have the mobile computer fully inserted.

Remove Phillips-head screws and replace with slotted-head retaining screws. Retaining screws must go straight into the screw holes on your mobile computer.

Figure 8 Connecting Intermec 700 Color Mobile Computer to Scan Handle

2. Remove the two slotted-head retaining screws from the accessories packet. These retaining screws are easy to identify because they are only partly threaded.

3. Insert and tighten the two slotted-head retaining screws through the scan handle and into the screw holes in the mobile computer (Figure 8).

Note: The computer is not secured to the scan handle unless the retaining screws are correctly aligned and tightened.

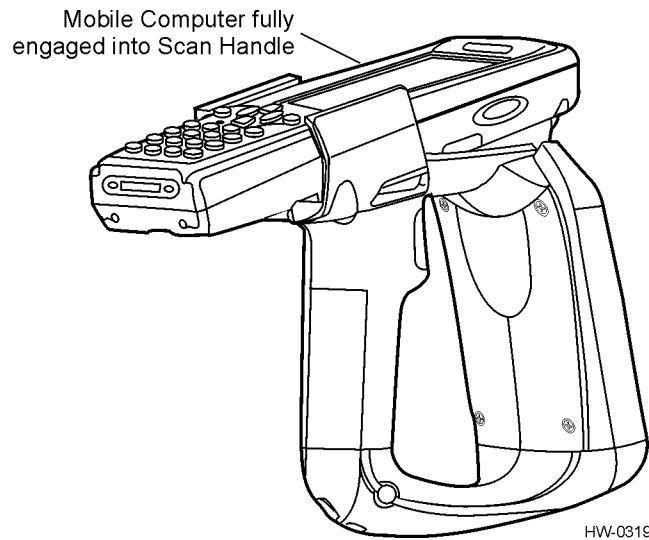Figure 9 shows the fully assembled scan handle and mobile computer.

Figure 9 Intermec 700 Color Mobile Computer Fully Inserted into Scan Handle

To remove the mobile computer from the scan handle

1. Remove the two retaining screws.

2. Grasp the 700 Color Mobile Computer at the display end, and pull forward toward the handle face. Replace the two Phillips-head screws if needed.

Testing the Encompass 1 Handheld Reader

This Quick Start Guide has only minimal information about the mobile computer. Refer to the *Intermec 700 Mobile Computer User Guide* to learn about the 700 Color Mobile Computer features and functions.

Note: Ensure that the mobile computer battery is charged before proceeding.

1. Switch on the mobile computer by pressing the yellow I/O button. The first time you switch on your mobile computer, it boots to the operating system. After a few seconds, you see the Windows Mobile 2003 Welcome screen. Tap the screen with your stylus to advance to the next display on the screen.

2. You are prompted through several screens to complete the setup process. Read the display messages and follows the instructions. When you reach the Windows Mobile Today screen, you have completed the computer operating system setup. After the computer operating system is reset, the TagReader Demo software reinstalls.

3. Once the TagReader Demo program is re-installed, use your stylus to select the **TagReader Demo** icon or name listed in the Start Menu (Figure 10).
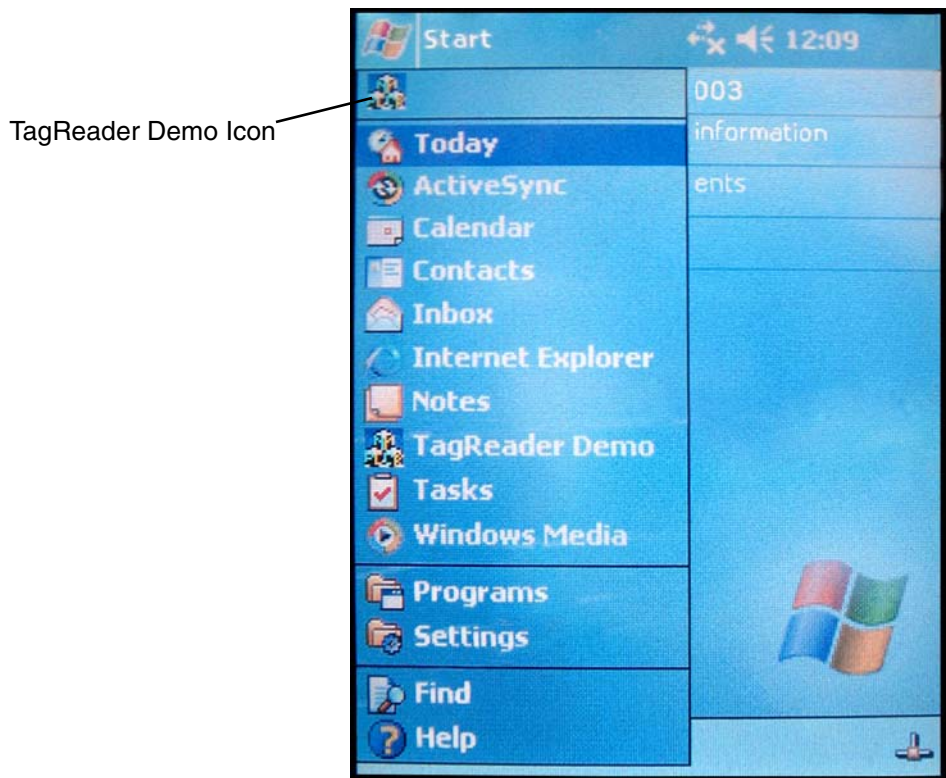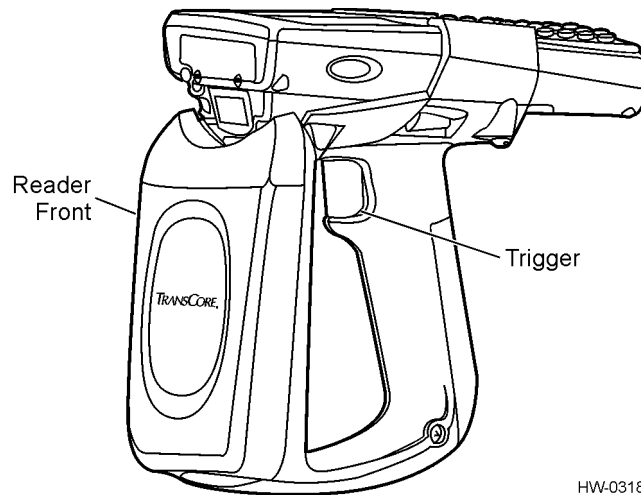
TagReader Demo Icon

Figure 10 TagReader Demo Icon and Program Listed in Start Menu

4. Squeeze scan handle trigger (Figure 11) to check battery capacity as indicated on bottom LED (Figure 12 and Table 1).

Reader Front

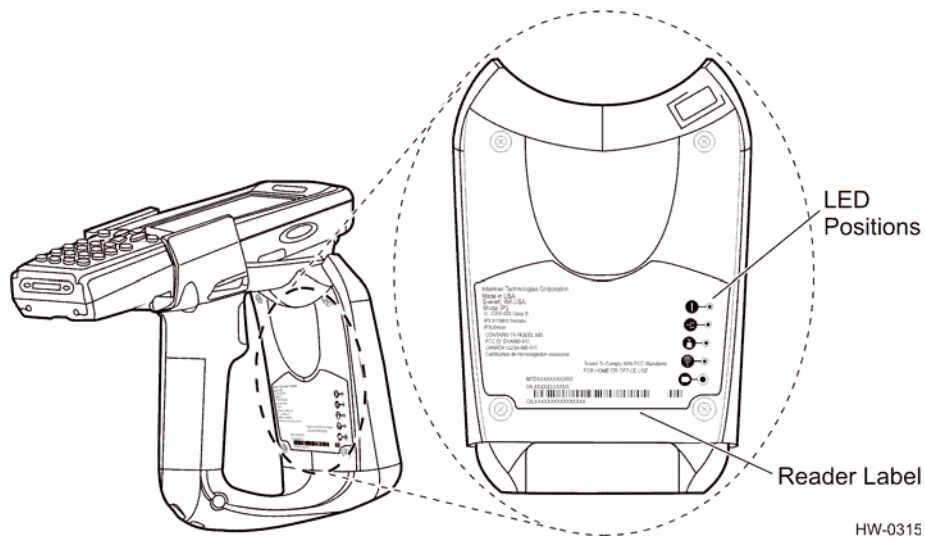Trigger

HW-0318

Figure 11 Location of Trigger

Figure 12 Location of Scan Handle LEDs

Scan Handle LED Locations and Definitions

Table 1 lists the scan handle LEDs and corresponding symbols.

Table 1 Scan Handle LED Descriptions

LED Symbol	Indication	Description
	READY TO WORK	Scan handle is connected to mobile computer and is ready for use.
	HOST COMM	Data communication with host is active.
	RF ON	RF power is on.
	TAG COMM	Valid tag transaction

Table 1 Scan Handle LED Descriptions (Continued)

LED Symbol	Indication	Description
	BATT	Battery condition: Red – 0% to 20% charge Orange – 20% to 80% charge Green – 80% to 100% charge

Reading Tags

Note: If your Encompass 1 Scan Handle is not identified by the TransCore logo on its faceplate, you will not be able to read ATA, Wiegand, and TransCore eGo tags.

To read tags

1.   Start the mobile computer TagReader Demo program by pressing the input/output (I/O) button on the computer.

2.   Select the **TagReader Demo** icon or Program Name in the Start Menu (Figure 10).

3.   Aim the handheld reader at the RFID tag and squeeze the trigger. To obtain a good first-time read, you need to be within three feet (one meter) of the tag.

4.   Check the mbile computer screen to see if the tag type and ID displayed.

The scan handle reads ATA (full-frame), Wiegand (half-frame), and eGo tags. You do not need to know which type of tag you are reading.

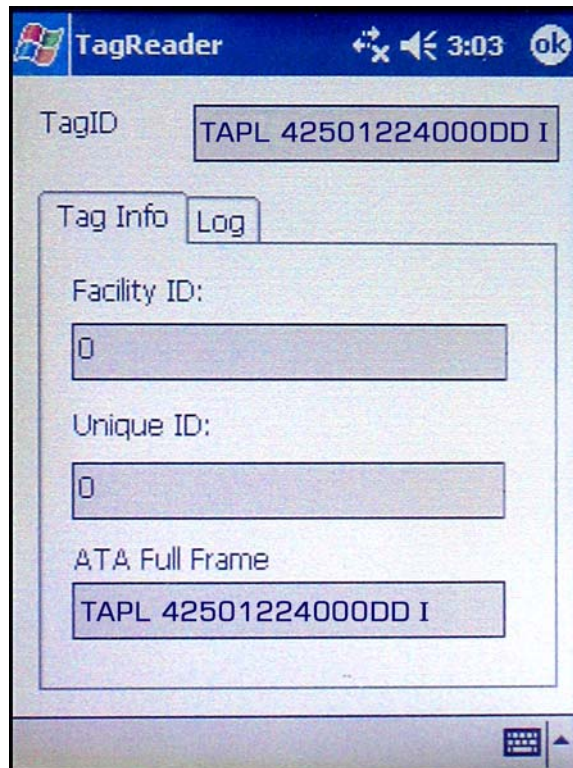An example of a screen display for an ATA tag transaction is shown in Figure 13.

Figure 13 Sample Display of ATA Tag Read

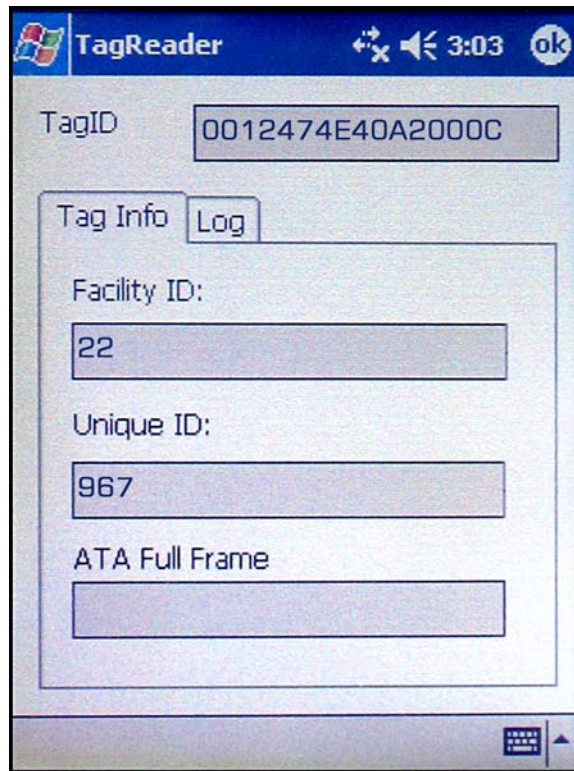An example of a screen display for a half-frame Wiegand tag read is shown in Figure 14.

Figure 14 Sample Display of Wiegand Tag Read

An example of a screen display for an eGo tag read is shown in Figure 15.
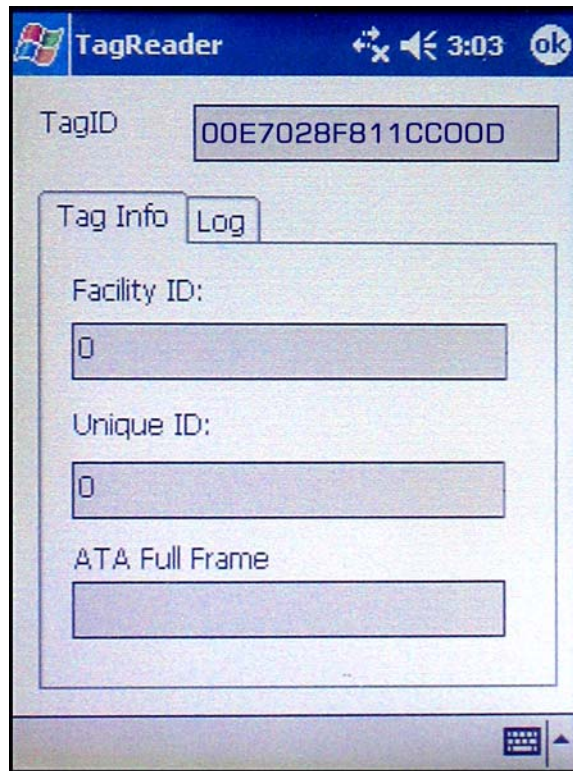

Figure 15 Sample Display of eGo Tag Read

Resetting Your 700 Color Mobile Computer

Applications operating on your 700 Color Mobile Computer may stop responding to the system. Should this occur, you may need to perform either a warm reset or cold reset of your computer. Refer to the warm and/or cold resetting sections in the Intermec *700 Color Mobile Computer With Windows Mobile 2003 Quick Start Guide*.

Encompass 1 RFID Scan Handle Specifications

This section lists the Encompass 1 RFID Scan Handle performance and product specifications. See the *Intermec 700 Mobile Computer Quick Start Guide* for performance and product specifications for that device.

Product Performance

Using the scan handle continuously to read tags may cause the unit to overheat. Overheating causes the scan handle to stop reading tags. If this happens, allow the scan handle to cool to a temperature range of -4°F to +131°F (-20°C to +55°C) before reading more tags.

Encompass 1 RFID Scan Handle Specifications

Frequency

Table 2 Frequency Specifications

Frequency Reference Source	Specification Detail
Source type	Frequency hopper
Frequency band	902 to 928 MHz
Transmitter	
Output power (1 watt maximum)	Minimum: 28.5 dBm Typical: 29.5 dBm Maximum: 30.0 dBm
Modulation	99%, 40 dB on/off
Data rate	eGo tags: 33 to 40 kbps ATA tags: 10 kbps

Performance

Table 3 Overall Performance Specifications

Dispatch Rates	Specification Detail
RFID tag ID rate	Read at least 6 eGo tags per second at a distance of 3 feet (0.9 meters).
RFID tag read distance	ATA tags: 4 feet (1.2 meters) eGo tags: 3 feet (0.9 meters)
RFID tag data exchange rates	Read an eGo tag containing 8 bytes of data within 50 milliseconds (ms).

Environmental

Table 4 Environmental Specifications

Temperature Ranges	Specification Detail
Operating	-4°F to +131°F (-20°C to +55°C)
Storage	-40°F to +158°F (-40°C to +70°C)
Humidity	
Operating	0 to 95% relative, non-condensing

Firmware Architecture

Table 5 Firmware Architecture Specifications

Firmware	Specification Detail
Protocol/compatibility	Communicates in one mode: application peripheral interface (API). ANSI NCITS 256.2000 for API, part 2, part 3-1

Safety/Regulatory/Compliance

Table 6 Safety/Regulatory/Compliance Specifications

Safety and Regulatory Approvals	Specification Detail
Scan handle	cULus listed accessory
	CB report for international product safety
	FCC OET Bulletin 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields, for general population uncontrolled exposure when installed in accordance with TransCore-approved antennas
Electromagnetic Compatibility	
Scan handle	FCC Part 15/Industry Canada ICES-003 Class B digital emissions

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