

Quick Reference Guide

Savi Mobile Reader SMR-650 for the Intermec CK61G Mobile Computer



Published February 2009

Part number 805-05802-901 Rev A

Documentation for Savi Mobile Reader SMR-650 for CK61G

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About the Savi SMR-650-216 Mobile Reader

The Savi® SMR-650-216 Mobile Reader is a portable radio frequency identification (RFID) reader that communicates with Savi RFID tags.

The Savi SMR-650-216 Mobile Reader attaches to the Savi Boot Adapter and is factory-installed on the Intermec® CK61G Mobile Computer. The adapter is installed at the factory and cannot be purchased separately. The reader is positioned at an angle to the mobile device to improve tag read performance.

WARNING: *If you remove the Savi Boot Adapter and the Savi Mobile Reader SMR-650-216 from the Intermec CK61G Mobile Computer, you will void the Savi warranty.*

Do not remove the Intermec CK61G Mobile Computer from the soft case except for cleaning.

Hardware Components

The following components are included in the Savi Model CK61-KIT-C-531.

- Savi SMR-650-216 (factory mounted on the Intermec CK61G Mobile Computer)
- Intermec CK61G Mobile Computer (with 64 MB RAM, 128 MB of nonvolatile storage, with an additional 256 MB SD card memory, two batteries (lithium ION 2400 mAh, and two styluses)
- Savi Intermec CK61G Mobile Computer Boot Adapter (factory mounted on the Intermec CK61G Mobile Computer).
- Savi soft case with shoulder strap (factory installed on the Intermec CK61G Mobile Computer)
- Intermec CK61G dock charger with integrated battery charger

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- USB data cable (USB-A to USB-B) 2 meters in length
- Universal power supply, 12VDC, 50W, FW5012
- Country-appropriate power cord
- Small screwdriver to remove the plastic boot adapter cover
- Savi SmartChain Mobile 5.3 for Windows Mobile 5, preinstalled
- User Manuals

Available hardware accessories include the portable Zebra® printer and connector.

Savi Mobile Reader SMR-650-216 and Intermec CK61G Mobile Computer enclosed in a soft case:



Intermec CK61G Mobile Computer enclosed in a soft case (with boot adapter and Savi Mobile Reader SMR-650 attached)



Dock Charger Power Supply



Country-appropriate Power Cord



Spare Battery



USB Data Cable



Intermec CK61G Dock Charger

Savi SMR-650-216 and Intermec CK61G Mobile Computer

The following graphic illustrates the CK61G Mobile Computer with the SMR-650 attached.



The pouch encloses a cable with a DB-9 connector for attaching the CK61G Mobile Computer to a serial printer. While the CK61G is docked,

you can store the plastic cover from the base of the Savi Boot Adapter in the pouch.

WARNING: *If the CK61G Mobile Computer is removed from the docking station, you must reinstall the plastic cover when using the CK61G Mobile Computer in an incendiary environment.*

Reader Communication

The SMR-650 Reader has an ultra high frequency (UHF) transceiver and low frequency (LF) transmitter that communicate with all Savi RFID tags via the UHF and LF antennas. Your software determines if you use UHF or LF commands.

UHF Mode

The UHF transmitter sends commands and write information to Savi RFID tags. In UHF mode, the mobile reader supports single and continuous collection modes.

When the mobile reader is in single UHF mode, you can only perform one tag collection within a fixed radius. When the mobile reader is in continuous UHF mode, you can perform multiple tag collections while moving through a facility.

The yellow status LED is visible when the SMR-650 reader is receiving a UHF signal and as an indication the tag ID and the information in the data packets is being validated. When the yellow LED flashes, it indicates that the mobile reader received a valid data packet. The yellow LED is only functional when receiving UHF data and is not functional during UHF or LF transmission. You can view the LED through a clear plastic window in the soft case.

Yellow LED flashes to indicate mobile reader is receiving data



LF Mode

LF mode is controlled by the software running on the mobile computer. LF mode is compatible only with Savi tags. To use LF mode, you must turn it on in your software. Refer to *SmartChain Mobile 5.3 User Guide*.

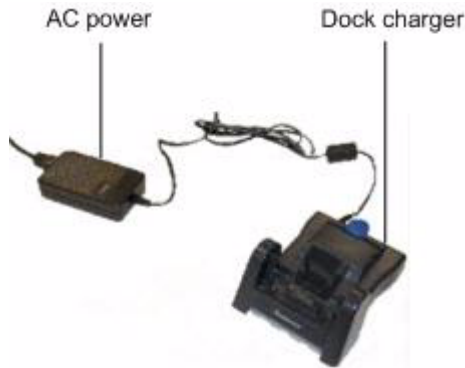
With your software, you can use LF mode to perform short-range communications up to 3 feet (.91 m).

Docking and Charging the Intermec CK61G

The Savi Boot Adapter lets you dock and charge the mobile device. You do not need to remove the soft case to dock the CK61G.

To dock the Intermec CK61G:

1. Connect the AC power cord to the power supply.
2. Connect the power supply to the dock charger and plug it into an AC power outlet.



3. Unzip the two zippers that connect the lower section of the soft case to the upper section.

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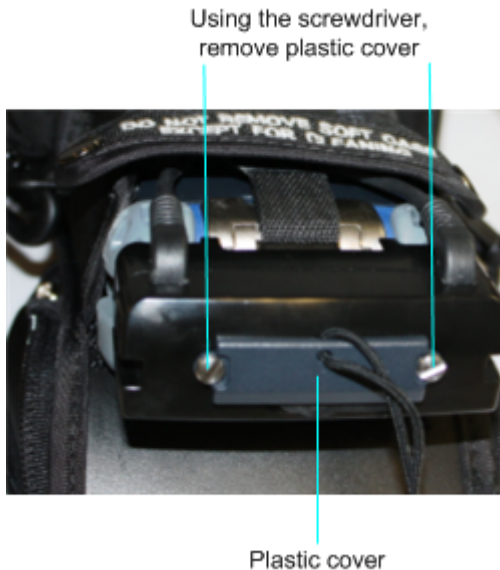
- 4. Unsnap the snaps that connect the lower section of the soft case to the upper section.



- 5. When the lower section of the soft case is free, fold it up out of the way of the Savi Boot Adapter on the bottom of the Intermec CK61G. The

Intermec CK61G ships with a plastic NI (Non-Incendive) protection cover on the boot adapter connector.

6. Before docking the Intermec CK61G Mobile Computer, use a screwdriver to remove the plastic NI cover and store it in the pouch.



WARNING: If the CK61G Mobile Computer is removed from the docking station, you must reinstall the plastic cover on the boot adapter when using the CK61G Mobile Computer in an incendiary environment.

7. Insert the Intermec CK61G into the dock charger by sliding the molded slots on either side of the boot adapter onto the corresponding guides on the dock charger.



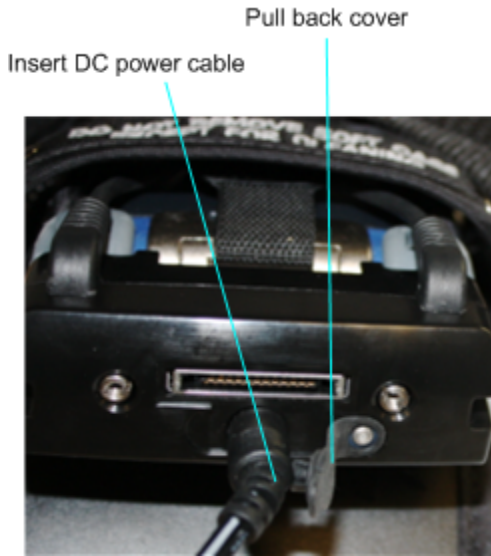
8. Press down until you feel the adapter engage the dock charger.

If the battery needs charging, the battery status LED is red when the connector is seated fully. The mobile device is now connected, and begins charging through the dock charger. The battery status LED changes to green when the battery is fully charged.

Optional Charging Method Without the Docking Station

The mobile device can be charged without the docking station.

1. Repeat steps 1 through 6 of “Docking and Charging the Intermec CK61G” on page 11.
2. Pull back the protective rubber cover. Insert the DC power cable.



WARNING: If the CK61G Mobile Computer is removed from the docking station, you must reinstall the plastic cover on the boot adapter when using the CK61G Mobile Computer in an incendiary environment.

If the battery needs charging, the battery status LED is red when the connector is seated fully. The mobile device is now connected, and its battery begins charging through the dock charger. The battery status LED changes to green when the battery is fully charged.

Resetting the SMR-650-216

When exposing the base of the reader, handle the Savi SMR-650-216 gently as it is physically connected to the mobile device by its cable.

The reset contacts on the SMR-650-216 are located in the pinholes on the unit as illustrated next.



Reset contacts in pinholes

If the SMR-650-216 Reader is not communicating with Savi RFID tags, insert the tips of an unfolded metal paper clip (made into a U-shape) into the pinholes simultaneously to reset the unit. The LED will blink for a second to indicate that the reset has occurred.

Using the Intermec CK61G Mobile Computer

This guide provides general information for operating the Intermec CK61G Mobile Computer. For more information regarding the Intermec CK61G, refer to

<http://www.intermec.com/products/cmptrck61a/index.aspx>. For specific information about the Intermec CK61G Mobile Computer, refer to the documentation included with the device.

Intermec CK61G Mobile Computer Keys

Power

Press the Power button to turn on the Intermec CK61G and start Windows Mobile.

When on, pressing the power button puts the Intermec CK61G into a power-saving mode that preserves power to memory and other vital features, but suspends power to most hardware. Press the Power button again to resume normal operation.

If the mobile computer stops responding to input or you need to restart a Savi application, you can perform a soft reset.

A soft reset restarts the mobile computer and saves all stored records and entries. It cleans up memory occupied by programs running in the background, such as ActiveSync. A soft reset can also address application behavior issues including DLL loading, scan errors, and so forth. The mobile device returns to a stable state. All data that is not saved is lost.

To perform a soft reset, hold down the Power button for approximately five seconds. As soon as the mobile computer screen displays Starting Windows, release the Power button.

Cursor Keys

Use the cursor keys to navigate the mobile computer's display screen.

Delete Key

To delete a selected character or characters, hold down the orange key and press the CTRL key at the same time.

Backspace Key

Use the backspace key, marked with an arrow, to move the cursor back a space and delete the character in the space, if any.

For information on the other keys, refer to the *Intermec CK61G Mobile Computer Product Reference Guide* included with the device.

Intermec CK61G Mobile Computer Keypad



Optimizing the SMR-650 Reader Tag Collection Range

To optimize the Savi Mobile Reader SMR-650-216 tag collection range, make sure the mobile device is perpendicular to your body. Hold it so the reader is upright at approximately a 45° angle and you can easily see the mobile device screen. With the Savi Mobile Reader SMR-650-216 in this position, you can collect most tags within an omni-directional pattern of 200 feet (61m).



Factors that can limit the SMR-650-216 reader collection range include:

- Obstructions such as multiple walls, chained areas, solid-core doors, and enclosures
- RF interference from other equipment such as computers, cellular phones, walkie-talkies, elevators, electrical motors, or other RF-emitting devices
- Reflection from the ground and from nearby objects
- Position and orientation of the SMR-650 reader
- Metal or RF-absorbent surface on the tracked item
- Tag location relative to the SMR-650 reader, such as behind a metal obstruction or stacked under multiple layers

Radio interference also affects the probability of collecting any given tag, and you can expect some variance in repeatability in the field.

Optimal CK61G Mobile Device Battery Life

Savi recommends the following settings to optimize the battery life of the attached Savi SMR-650-216 (pre-configured at the factory). The settings are listed here in the event they need to be reset.

1. Turn on the mobile device.
2. Tap **Start > Settings**.
3. Select the **System** tab.
4. Tap **Backlight**.

On the Battery Power tab:

- Check **Turn off backlight if device is not used for** and select **5 min**.
- Uncheck **Dim backlight if device is not used for 15 seconds**.
- Check **Turn on backlight when a button is pressed or the screen is tapped**.
- Under Brightness Level, move the pointer to the midway point or less.

On the External Power tab:

- Uncheck **Turn off backlight if device is not used for**.
- Uncheck **Dim backlight if device is not used for 15 seconds**.
- Check **Turn on backlight when a button is pressed or the screen is tapped**.
- Under Brightness Level, move the pointer to the midway point or less.

On the Both Power tab:

- Under On All Power, check **Restore backlight state on resume**.

-
- Under Automatic Backlight Control, select **Turn Off In Bright Light**.

On the Keyboard tab under Keyboard Backlight, select **Always Off**

5. Tap **ok** to close the Backlight window.
6. Tap **Intermec Settings**.
7. Tap **Device Settings**.
8. Tap **Power Management**.
 - Under **Battery Power > Device turns off after** =, select **5 minutes**.
 - Under **Battery Power > Screen turns off after** =, select **5 minutes**.
 - Under **External Power > Device turns off after** =, select **Disabled**.
 - Under **External Power > Screen turns off after** =, select **Disabled**.
9. At the bottom of the window, tap **File** and select **Save Settings**.
10. Tap **X** to close the Intermec Settings window.
11. Tap **Power**.
12. On the Advanced tab:
13. Tap **ok** to close the Power window.
14. Tap **X** to close the Settings window.

Contacting Savi Support Services

If you cannot find the information you need, contact Savi Support Services.

- Check <http://supportcenter.savi.com> for contact information.
- Send an email to help@savi.com.
- Call 1-888-994-7284 (North America only) or 1-650-316-4760 between 5 a.m. and 5 p.m. Pacific time.

When you contact Savi Support Services by telephone or email, have the following information available:

- Contact information (company name, your name, email, and phone number)
- Problem description
- Software version
- Product type
- Serial number or license information

Savi may release firmware updates to products as required. To check and download firmware updates, go to <http://supportcenter.savi.com> or contact Savi Support Services at 1-888-994-7284 or 1-650-316-4760.

Specifications

Specification	Description
Model Number	C K61-KIT-C-531 Active handheld RFID interrogator using the Intermec CK61G and SMR-650
Physical	Dimensions: CK61G: 8.7 in. (222 mm) x 3.5 in. (90 mm) x 2.1 in. (55 mm). SMR-650: 6.3 in. (158.8 mm) x 2.5 in. (63.5 mm) x 1 in. (25 mm) Weight: Total 31.2 ounces (885 g); CK61G: 24.8 ounces (704 g); SMR-650: 6.4 ounces (181 g) Display: Transflective TFT w/ LED backlight: 3.8 in. (97 mm) QVGA Color w/ touch panel Keypad: 58-key w/ full alphanumeric keys and LED backlighting
Environmental	Temperature: -10°C to +50°C Operating; -40°C to +60°C Storage Humidity: 95%, Non-Condensing Electrostatic Discharge: ±8kV Contact Discharge; ±15kV Air Discharge Drop Survival: Multiple 4 ft. (1.2 m) drops Weatherproofing: I P64
Wireless UHF Transceiver	Frequency: 433 MHz Range: 200 ft. (61 m), line-of-sight interrogator and transponder Protocol: Echopoint Protocol
Wireless (LF Transmitter)	Frequency: 123 kHz Range: Up to 3.5 ft. (1.1 m) Air Protocols: ISO 18000-7, EchoPoint, ANSI INCITS 256

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Specification	Description
Barcode	Type: Integrated 2D area imager Supported Symbologies: Code 39, Interleaved 2 of 5, S 2 of 5, Matrix 2 of 5, Code 128, Code 93, Code 93i, Codabar, Codablock, MSI, Plessey, UPC, EAN/EAN128/GS1, ISBT128, Code 11, RSS, Telepen, PDF417, Micro PDF417, Micro PDF417, Maxicode, Datamatrix, QR Code
Software	Operating System: Windows Mobile 5.0 Application: SmartChain Mobile Firmware: Supports Field Updates
Power	RFID Interrogator Power Source: USB Internal Battery: Removable, rechargeable Li-ion; 7.2v, 2400 mAh
Network	Interface: Interface back to network requires mobile computer to be enabled with wireless or wired docking station (USB, Ethernet, WiFi)
Accessories	Mounting: The SMR-650 is permanently attached to the CK61G by a cable and held by a soft case. Includes shoulder strap. CK61G fits into Docking Station and can be charged without detaching SMR-650.
Approvals	Radio Type Approval: FCC Part 15, RSS 210, EN 300 220 (433 MHz), EN 300 330 (123 kHz) EMC & Immunity: IEC 60601, EN 301, 489 Product Safety: AC Adapter to UL60950/CSA C22.2 No. 60950/IEC/EN60950 Ordnance: HERO Certified (Unit will meet a 4 in./10.1 cm safe separation distance) Hazardous Location: UL 1604, Division 2, Class I, Groups A,B,C,D; Class II Groups F,G; Class III