MAXIM

High-Frequency Developers Kit for ISO 14443B and ISO 15693 RFID Keys

Evaluates: MAX660_0/MAX661_0 RFID Keys

General Description

The MAX66901 evaluation kit (EV kit) includes RFID keys and reader hardware for evaluation of Maxim's line of 13.56MHz RFID keys. The RFID keys can be used in access control, security, and eCash applications. Besides standard transactions using both ISO 14443B and ISO 15693 protocols, the EV kit demonstrates the speed, reliability, and security of SHA-1-based mutual authentication. The fully documented serial-port command set allows converting this kit into a full-access control or eCash system.

Ordering Information

PART	TYPE
MAX66901-K00#	EV Kit

#Denotes a RoHS-compliant device that may include lead(Pb) that is exempt under the RoHS requirements.

Features

♦ **Complete System to Evaluate Maxim's Line of RFID Keys**

♦ **Uses Sirit INfinity 110 13.56MHz RFID Reader Module**

♦ **Fully Documented Serial-Port Command Set**

♦ **Supports ISO 14443B and ISO 15693 Protocols**

♦ **Allows Full Evaluation of SHA-1 Mutual Authentication**

♦ **Accepts Firmware Updates to Support Future RFID Keys**

♦ **Configurable Baud Rate: 9.6, 19.2, 38.4, 57.6, and 115.2kbps**

♦ **Single 6V to 9V DC Power-Supply Operation**

EV Kit Contents List

QTY	DESCRIPTION
1	Sirit INfinity 110 13.56MHz reader module
1	100V to 240V, 50Hz to 60Hz power supply, connected to reader module
1	DB9 RS-232 serial-port cable, connected to reader module
1	Set of four interchangeable, quick-release international power plugs (United Kingdom, Europe, North America, and Australia)
1	MAX66901 EV kit CD with Sirit INfinity 110 documentation and software
2	RFID key, ISO 14443B, 64b UID Maxim MAX66000K-000AA+
2	RFID key, ISO 14443B, 64b UID, 1Kb memory Maxim MAX66020K-000AA+
2	RFID key, ISO 14443B, 64b UID, 1Kb memory, SHA-1 Maxim MAX66040K-000AA+
2	RFID key, ISO 15693, 64b UID Maxim MAX66100K-000AA+
2	RFID key, ISO 15693, 64b UID, 1Kb memory Maxim MAX66120K-000AA+
2	RFID key, ISO 15693, 64b UID, 1Kb memory, SHA-1 Maxim MAX66140K-000AA+

+Denotes a lead(Pb)-free/RoHS-compliant package.

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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

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Getting Started

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the EV kit software. Text in **bold and underlined** refers to items from the Windows® operating system.

The MAX66901 EV kit comes with a 35cm x 26cm x 12.5cm carrying case. Figure 1 shows the complete contents.

Software Setup

Insert the MAX66901 EV kit CD in the disk drive, open the folder MAX66xx0K_Evaluation_Software, and double-click the **setup.exe** file. Follow the instructions on the screen. When finished, press **OK** to exit the installation. By default, the software installs itself in the folder C:\Program Files\Smart Label Communicators. The installer does not create a shortcut on the desktop. The software must be installed from the CD.

Hardware Setup

Remove the assembly of reader, power supply, and serial-port cable from the case. Take the power-supply unit, remove the black insert from the wall adapter, and install the power plug that works in your location. Do not yet plug the AC adapter into a power outlet. Do not yet connect the serial-port cable to the PC. Make sure that the serial port is enabled.

EV Kit Operation

Connect the serial-port cable to the serial port (e.g., COM1) on your computer. Plug the AC adapter into a functioning wall outlet. Start the evaluation software: **Start** → **Programs** → **Sirit Maxim SHA-1 Demo** → **Sirit Maxim SHA-1 Demo**. This displays a greeting as in Figure 2, which after a few seconds is replaced by the evaluation software's GUI.

If communication with the reader is established, the reader type, firmware revision, port number, and data rate are displayed at the top of the window (Figure 3). If communication with the reader was not established (or was lost) for any reason, the text "Searching for a reader" appears instead. In the latter case, verify the setup of the COM port and the connections to the serial port and wall outlet, and power-cycle the reader.

Now refer to the **MAX66xx0K_Evaluation_Guide** in the Documentation folder on the CD and the sections that apply to the RFID keys to be evaluated. To communicate with an RFID key, the key must be placed on the location marked "Place Key Fob Here."

Figure 1. MAX66901 EV Kit Contents

Windows is a registered trademark of Microsoft Corp.

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Figure 2. Evaluation Software Greeting

Figure 3. Reader Responds to the Evaluation Software

Development Resources

The primary document for development purposes is the **INfinity_110_Prot_Ref_Gd_MAX66xx0K**. This document references a supplemental document, the **INfinity_110_Prot_Ref_Gd**. Both documents are found in the Documentation folder on the CD.

_Sirit INfinity Reader Configuration

The Sirit INfinity 110 reader operates on firmware that executes the commands described in the **INfinity_110_Prot_Ref_Gd_MAX66xx0K**. The **MAX66xx0K_Evaluation_Guide** and **INfinity_110_Prot_Ref_Gd_MAX66xx0K** specify the firmware revision they require. To work with evaluation software that was created after the EV kit was purchased, it could be necessary to upgrade the firmware in the reader.

A copy of the latest firmware from the time when the EV kit was assembled is found on the CD in folder Firmware_Utilities. Look for a file name similar to **lotis-D523.fmw**. The code "D523" in this example identifies the firmware revision. Newer firmware has a higher number and a newer date stamp.

Before new firmware can be installed in the reader, it is necessary to install the Lotis Downloader on the PC. To install the downloader, navigate to the Lotis_Downloader folder in the Firmware_Utilities folder. Then double-click the **setup.exe** file and follow the instructions on the screen. For more guidance, refer to *Section 3: Smart Label Communicator Software Installation* in the **INfinity_110_Eval_Kit_Users_Guide**. After the downloader is successfully installed, follow the **Downloading Firmware** instructions in *Section 6: Configuration and Maintenance* in the **INfinity_110_Eval_Kit_Users_Guide**.

Troubleshooting

For information on how to resolve typical problems, refer to *Section 7: Troubleshooting* in the **INfinity_110_Eval_Kit_Users_Guide**. For more information on Sirit INfinity 110, go to www.sirit.com.

Additional Documentation

For more information, refer to the following IC data sheets:

- MAX66000
- MAX66020
- MAX66040
- MAX66100
- MAX66120
- MAX66140

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_____*Revision History*

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	1/10	Initial release.	—
1	2/10	Changed the part number in the *Ordering Information* table from MAX66901EVKIT# to MAX66901-K00#.	1

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