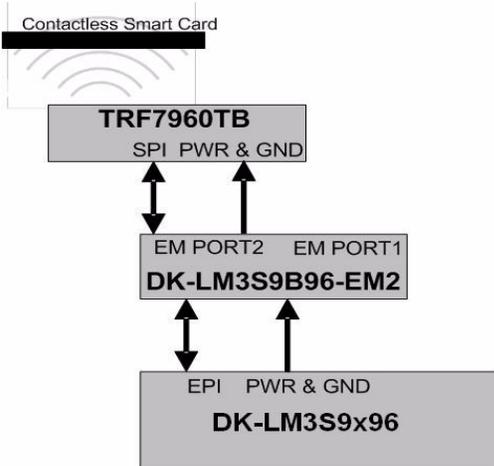


# 13.56 MHz RFID Protocol on Stellaris®

The Stellaris® 13.56 MHz RFID Wireless Kit from Texas Instruments is a complete system solution for enabling RFID capabilities in customers' end equipment. The solution works with two of our most popular Stellaris microcontroller development kits (each sold separately), a Stellaris EM2 expansion board, and TI's TRF7960TB HF RFID Reader Module along with all necessary firmware and software to provide a compelling RFID development environment and interactive system demonstration.

This RFID technology has been selected for most contactless smart card projects and as a result, become the most successful one within the automatic fare collection industry. In addition, this technology successfully addresses other applications such as loyalty, road tolling, access management, and gaming. This solution is based on ISO/IEC 14443 Type A which is the international standard for proximity card systems consisting of card and reader components with a typical read/write distance of 10 cm (4 inches).

The Stellaris® 13.56 MHz RFID solution allows software application developers to become familiar with the operation of the TRF7960TB Multi-Standard Fully Integrated 13.56 MHz RFID reader IC using their Texas Instruments' Stellaris DK-LM3S9B96 or DK-LM3S9D96 development platforms (each sold separately) without having to be concerned about the RF portion of the system. The Stellaris EM2 expansion board (DK-LM3S9B96-EM2) facilitates the connection of up to 2 wireless expansion modules using SPI as the primary interface to the TRF7960TB module.



Stellaris® 13.56 MHz RFID Block Diagram

## Features

- Open architecture platform—convenient, fast, flexible
- Broadest product portfolio and suppliers available
  - Mixed installations possible
  - Multiple manufacturing sources for cards (50) and readers (200)

- Based on ISO/IEC 14443A standard and used in >80% of all contactless smart cards today
- Proven, reliable, and robust technology
  - More than 1 billion smart card ICs in the field
  - More than 7 million reader components sold
  - Operable in harsh environmental conditions and maintenance-free
- Proven compatibility through a competent and independent certification institute
- Well-established, functioning worldwide infrastructure
- Highest security available via contactless interface
  - Externally certified by common criteria

## Included Software Sample Applications

- RFID Card Reader
- Simultaneous Dual- or Single-Card Access
- Displays UID and sector data for 2 cards simultaneously
- Modify displayed sector via touchscreen UI: format, increment/decrement, and erase
- Command-line access over serial port: read/write and display of any block on compatible cards

## Kit Contents



DK-EM2-7960R Kit Contents

The Stellaris® 13.56 MHz RFID Wireless Kit provides the tools engineers need to set up and develop wireless applications right out of the box including:

- 1 DK-LM3S9B96 EM2 Expansion Board (works with both the DK-LM3S9B96 Development Board and the DK-LM3S9D96 Development Board, *each sold separately*)
- 1 TRF7960TB HF RFID Reader Module
- 2 ISO/IEC 14443A (MIFARE® 1K Classic) contactless smart cards
- ISO/IEC 15693 inlay variety pack
- CD with tools, documentation, and source code

# 13.56 MHz RFID Protocol on Stellaris® (continued)



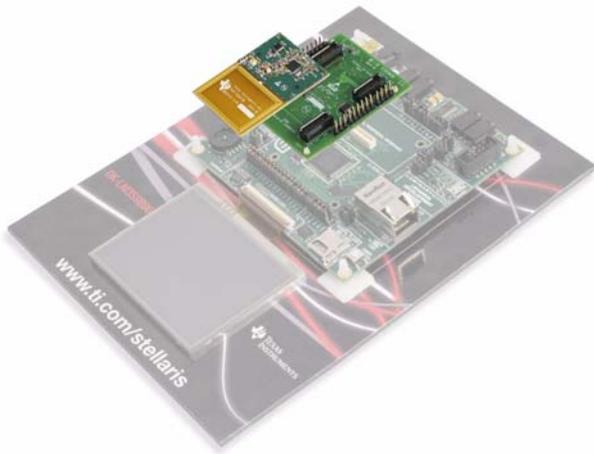
## Ordering Information

The RFID software provided for this kit is provided in both binary and source code form. Because RFID software contains security features, it is subject to U.S. Export Controls. After approval, a one-time download link will be provided to download the software. More information about getting pre-approved before purchasing a kit can be found at [www.ti.com/stellariswireless](http://www.ti.com/stellariswireless).

Product Number	Description
DK-EM2-7960R	Stellaris® 13.56 MHz RFID Wireless Kit (includes DK-LM3S9B96-EM2 Expansion Board)

The DK-EM2-7960R works with either of these two Stellaris Development Kits (each sold separately)

DK-LM3S9B96	Stellaris® LM3S9B96 Microcontroller Development Kit (Tempest class)
DK-LM3S9D96	Stellaris® LM3S9D96 Microcontroller Development Kit (Firestorm class)



TI's TRF7960TB HF RFID Reader Module, Stellaris EM2 Expansion Board, and DK-LM3S9x96 Development Kit

## Extended Protocol Support

This kit ships with a download link for RFID software. The underlying RFID radio solution can be software-extended to all TRF7960TB-supported protocols:

- ISO 14443B (Proximity Cards)
- ISO 15693 (Vicinity Cards)
- ISO 18000-3 (Item Management)
- Tag-it™ (Smart Labels)

Texas Instruments will be providing Stellaris-based solutions for all of these protocols. To be notified when protocols are added to the kit, go to the web site at [www.ti.com/stellariswireless](http://www.ti.com/stellariswireless) and select "Alert me about changes to this product" in the upper right corner of the page.

For more information on Stellaris wireless solutions: [www.ti.com/stellariswireless](http://www.ti.com/stellariswireless)

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<http://www.ti.com/stellaris>

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