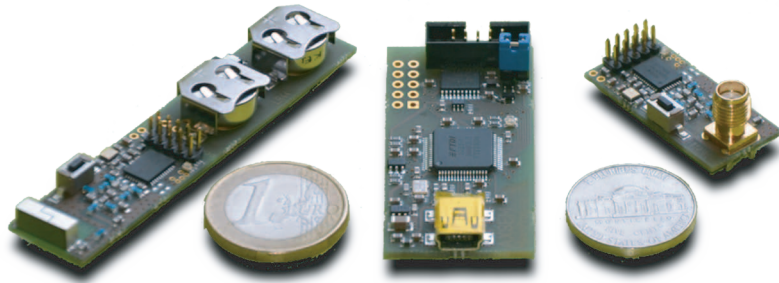


The Ready2Test Development Kit

For The **INTERNET** Of **THINGS**



Small - Smart - Easy

Overview

The F143-Mini-DVK is AXSEM's miniaturized development kit for the designer starting out with the AX8052F143, AXSEM's ultra-low power high performance SoC RF-Microcontroller. The F143-Mini-DVK hardware consists of a USB debug adapter and a pair of RF modules (F143-Mini-A-MOD and F143-Mini-B-MOD modules) and includes all software necessary to develop systems in shortest times. The modules have a tiny footprint of just 33 x 15 mm². One module comes with a chip antenna the other is equipped with an SMA connector.

Hardware

The F143-Mini-A-MOD module is equipped with an SMA connector that may be used either to connect a 50 Ω whip antenna or measurement equipment. This module does not allow for batteries to be connected but can be powered via the debug adapter.

The F143-Mini-B-MOD module is equipped with two 1.5 V LR44 batteries and a chip antenna. It can be powered either by the batteries or the debug adapter. The PCB section containing the battery clips can be broken away if not used, resulting in a module equal in size to the F143-Mini-A-MOD.

Modules are designed for use at a carrier frequency of 868.3 MHz.

Software

The F143-Mini-DVK is fully compatible with the DVK-2 and AXSEM's AX8052 development software environment. The software comes with a productivity enhancing IDE and C-compiler. The AXCode::Blocks integrated development environment (IDE) is a complete tool suite that supports development and debugging of C and assembler code for AXSEM microcontrollers. Its intuitive GUI provides an environment that accelerates the development cycle. The tabbed interface with code highlighting and folding helps to keep overview, while code completion, smart indent and a class browser help to speed-up code generation.

Code and Application Generator

The AX-RadioLab application generator creates fully functional C-code for a variety of RF applications. Code can be compiled and directly downloaded to the F143-Mini-DVK inside AX-RadioLab.

C-compiler

A full featured C-compiler is available for free download at www.axsem.com, allowing the developer to begin immediately. The optimizer that is included can be flexibly configured for either speed or code size.

Debug Link

The AXSEM debug link features not only unlimited break-points, but also a UART style terminal link. This UART link can be used together with AXCode::Blocks to display information that would appear on the LCD display on the full size DVK-2 development kit.

F143-Mini-DVK

Miniature Development and Evaluation Kit for the AX8052F143 lowest power Radio

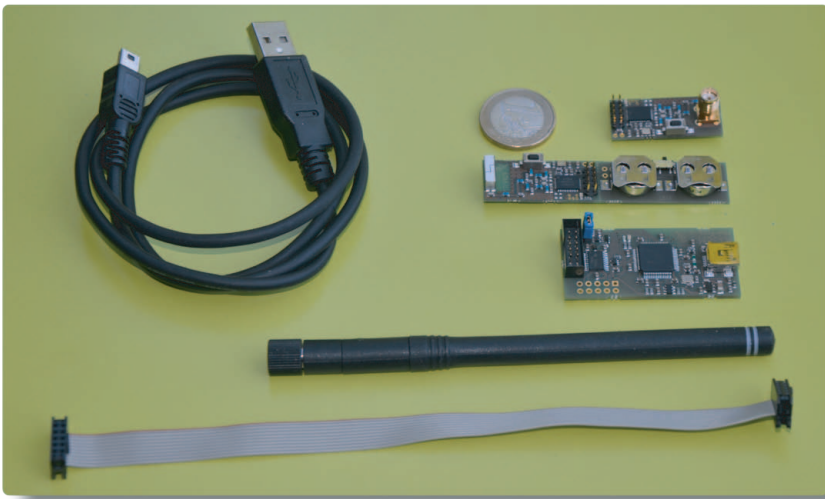
AXSEM. The most intelligent RF.

Your key benefits:

- **Two different RF modules included:**
 - A-MOD with SMA connector to connect either a whip antenna or measurement equipment
 - B-MOD with a chip antenna and two optional 1.5V LR44 batteries
- **USB debug adapter included**
- **Compatible with AX-RadioLab and AXCode::Blocks**
- **Free C-compiler**

APPLICATIONS

- Internet of Things
- Automatic meter reading
- Security applications
- Building automation
- Wireless networks
- Compatible with: Wireless M-Bus, POCSAG, FLEX, KNX, Sigfox, Z-Wave, enocean



Contents¹

- F143-Mini-A-MOD module
- F143-Mini-B-MOD module
- USB debug adapter
- Whip antenna
- Debug cable
- USB cable
- Batteries

Note 1: Subject to change at AXSEM's discretion

MODULE PERFORMANCE

Power

supply voltage range	1.8 - 3.6	V
RX current @ 868 MHz (with TCXO)	11.5	mA
TX current @ 868 MHz, 16 dBm	51	mA
TX current @ 868 MHz, 0 dBm	10.5	mA
sleep (256 Bytes RAM retention, wakeup timer)	950	nA
RX current (duty cycled 1s, 100 kbps)	4.5	µA

General

carrier frequency	868.3	MHz
data rate (RX & TX)	0.1 - 125	kbps
RSSI step	0.5	dB
channel filter bandwidth	1 - 220	kHz

RX 868.3 MHz, 1.2 kbps, FSK h=0.8

sensitivity (BER = 10 ⁻³)	-126	dBm
RSSI range	-129 to -39	dBm

TX 868.3 MHz, 1.2 kbps, FSK

output power programmable range	-10 - 16	dBm
output power programming step	0.5	dB

F143-Mini-A-MOD

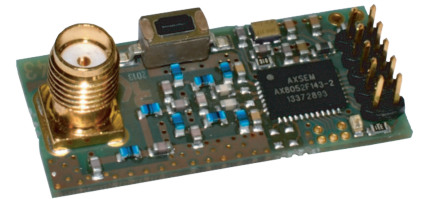
whip antenna gain	1	dBi
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F143-Mini-B-MOD

chip antenna gain	-1	dBi
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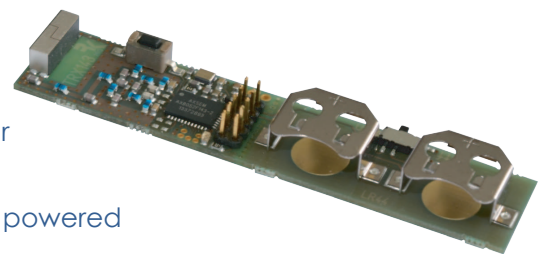
F143-Mini-A-MOD module features

- AX8052F143
- Interfaces: debug link, RS-232, 5 GPIO
- 33 x 15 mm²
- 48 MHz TCXO
- SMA connector
- Debug link connector
- Debug link powered
- LED
- Button



F143-Mini-B-MOD module features

- AX8052F143
- Interfaces: debug link, RS-232, 5 GPIO
- 72 x 15 mm² with battery section, 33 x 15 mm² with battery section broken away
- 48 MHz TCXO
- Chip antenna
- Debug link connector
- 2 LR44 battery clips
- Battery or debug link powered
- LED



Software

- AXCode::Blocks is the graphical Integrated Development Environment (IDE) for AX8052 projects.
- AX-RadioLab GUI generates full RF application C-code, compiles it and downloads to the modules
- AX-MicroLab is the C-code generator for micro controller application examples
- AXSDB is the AXSEM symbolic command line debugger
- SDCC is the C-compiler that AXSEM offers along with its development software

All software for download at www.axsem.com



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