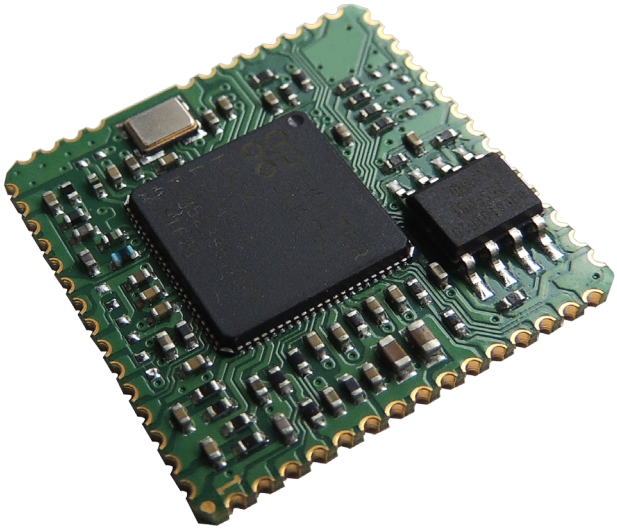
FRONTIER SMART TECHNOLOGIES

SIENA FS2415

DAB/DAB+/FM digital radio module for Digital Tick compliant audio devices



SIENA MODULE
21MM X 21 MM

APPLICATIONS

- **DAB/DAB+/FM digital radios**
- **Colour screen digital radios**
- **Digital Audio systems**

OVERVIEW

Siena is Frontier Smart Technologies' reduced form factor module based on the highly integrated Kino 4 digital radio System on a Chip (SoC).

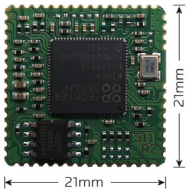
With no bulky connector (the module is soldered directly to the application PCB) Siena is the world's smallest DAB/DAB+/FM radio module. Designed to provide digital radio functionality to customer products, Siena offers a high-performance, low-cost solution to a wide range of digital audio products. Capable of supporting a full colour display and Slideshow technology. Slideshow allows colourful displays to run alongside the station's audio to provide extra information, such as, track details, web information, weather maps or traffic updates.

Siena can be incorporated in to customer audio systems acting as a slave digital radio system for host MCUs or as the master processor in an entry price point product.

In addition to enabling reduced system cost, Siena introduces a host of state-of-the-art technologies to optimise power consumption, RF and audio performance to provide a market leading end-user experience.

CONNECTIVITY

- UART/SCB (I2C compatible) control interface
- On-chip audio DAC with analogue output
- Digital audio output – I2S (slave mode only)
- SCB (I2C compatible) interface
- Keypad and rotary encoder support
- Configurable general purpose I/O (GPIO)
- Multi-purpose ADCs and PDM/PWM out



SIENA MODULE
(ACTUAL SIZE)

KEY FEATURES

- Colour screen support with Slideshow technology
- Single 3.3V supply option
- Customisable feature-set via the latest DAB SDK
- Innovative system for minimising self-interference
- Sensitivity optimised antenna configurations
- Band II/III
- DAB/DAB+ sensitivity to -100 dBm (typical)
- FM sensitivity to -108 dBm (typical)
- Power consumption typical 110mW (DAB)
- On-chip stereo DAC
- Digital audio output (I^2S) slave mode only
- Option for fully digital signal path with internal EQ
- Memory:
  - Integrated for DAB/DAB+/FM
  - Built-in flash - size dependent on application
- Temperature range:
  - Operation: 0 to +70°C
  - Storage: -40 to +85°C

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SIENA FS2415

DAB/DAB+/FM digital radio module for Digital Tick compliant audio devices

DESCRIPTION

Siena provides a complete flexible, low-power digital radio system, in a compact module, incorporating digital/analogue radio capability.

The diagrams opposite show typical applications of a Siena module.

SOFTWARE

Software is configured to customer requirements and pre-installed in the module's flash memory.

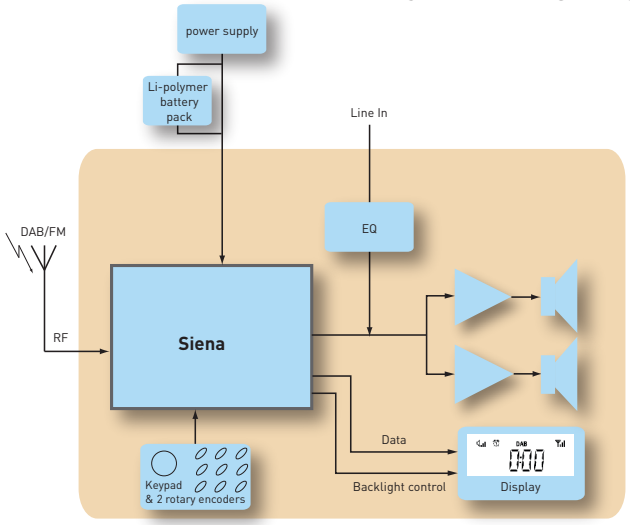
Full suite of customisable application software which includes:

- Support for a variety of User Interfaces, including colour graphic display and 1-line or 2-line displays.
- Clock with multiple alarms/timers
- Presets
- Support for up to 16 keys

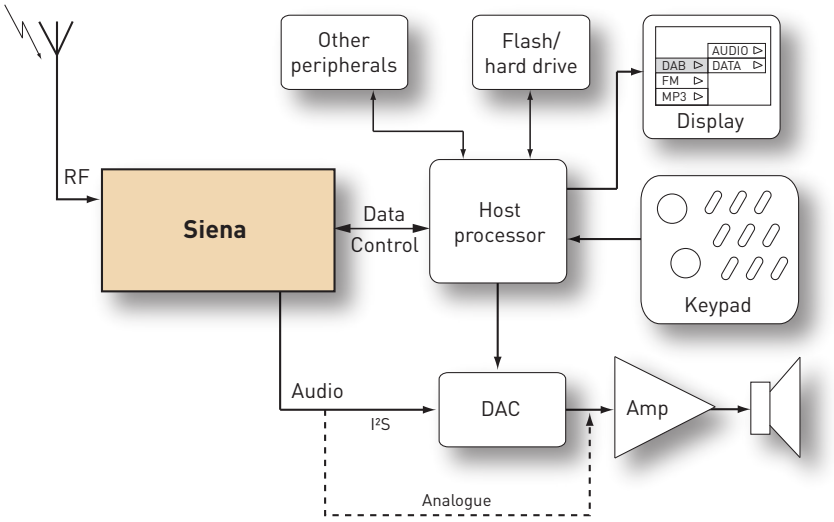
STANDARDS

Siena is precertified for digital tick compliance, significantly reducing the testing requirements for end products based on this module.

SIENA IN A TYPICAL MASTER APPLICATION



SIENA IN A TYPICAL SLAVE APPLICATION



SPECIFICATION

Supply voltage options		3.3V, 1.8V and 1.1V external supply 3.3V only external supply (default)
Power consumption *(dependent on implemented supply voltage option)*		110-300 mW (DAB/DAB+) 115-299 mW (FM-RDS)
DAB/DAB+	Sensitivity	-100 dBm (typ)
FM	Sensitivity (@ 40 dB SNR)	-108 dBm (typ)

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