

Compact Transceiver Module

868 MHz ISM Band

Key Features

- Low-cost OEM transceiver module for the 868 MHz ISM band
- Data rates of up to 500 kbps
- Integrated ceramic aerial, optional: external aerial connection
- Compact dimensions: 16 x 19.5 x 3.5 mm
- Supports low-power applications and WOR (wake-on radio)
- Low power voltage (1.8 to 3.6 V)
- Complies with requirements in R&TTE Directive 1999/5/EC
- Can be delivered in tape and reel
- Also available in 434 MHz and 2.4 GHz models



Description

The AMB8400 is a compact and low-cost transceiver module for wireless communications on the 868 MHz ISM band. Integrated functions, including automatic appending and checking of a 16-bit checksum, address analysis and the option of using FEC (Forward Error Correction) in combination with interleaving, take much of the work from the host system in handling radio-specific tasks. In standard operating mode, the module provides two FIFOs each of 64 bytes for sending and receiving.

Using an integrated timer the transceiver can also wake up automatically from low-power mode and process data via the radio interface (wake-on radio). Measured field strength (RSSI value) offers the option of enhancing the quality of the radio link and a function to record the ambient temperature via a built-in sensor is also included.

The AMB8400 is constructed on an SMD design and suitable for automatic component mounting. It can also be delivered in tape and reel packaging.

The AMB4400 and AMB2500 provide pin-compatible modules for the frequency ranges 433 MHz and 2.4 GHz. A software stack to form smaller radio networks (up to several hundred nodes) is provided free-of-charge in the source code.

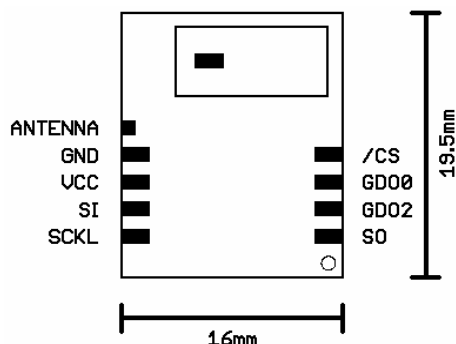
Interfaces

The AMB8400 is connected to a host system via the SPI interface with bit rates of up to 10 Mbps. Two additional pins can be freely programmed to provide a variety of functions such as Clear Channel Assessment, CRC analysis and FIFO operations.

Range of Application

Data collection, monitoring, remote control and sensor networks.

Dimensions



Pin layout

Pad Name	Description
VCC	Positive supply voltage
GND	Negative supply voltage
ANTENNA	Optional aerial connection
SI	SPI Data input
SCLK	SPI Clock
SO	SPI Data output
/CS	SPI Chip select
GD00	General-purpose pin
GD02	General-purpose pin

Specifications

Performance	Range*	up to 300 m (integrated antenna) up to 500 m (external antenna)
	RF data rate	1.2 to 500 kbps
	Interface data rate	up to 10 Mbps (SPI)
	Output power	typ. 2 dBm e.i.r.p (10 dBm at 50 Ω)
	RF sensitivity	up to -102 dBm (-110 dBm at 50 Ω)
General	Power supply	1.8 – 3.6 V
	Power consumption	TX: typ. 42 mA (integrated antenna) TX: typ. 31 mA (50 Ω) RX: typ. 17 mA Low Power: typ. < 1 μ A
	Dimensions	16.0 x 19.5 x 3.5 mm
	Operating temperature	-30 to +85 $^{\circ}$ C
	Weight	< 1 g
	Antenna	integrated ceramic-antenna external antenna connection (optional)
	RF transceiver	Texas Instruments CC1101
RF technology	Integrated functions	Address handling, CRC check, FEC, Interleaving, Clear Channel Assessment, Digital RSSI-measurement
	FIFO	64 Byte each with TX and RX
	Frequency range	863.0 – 868.6 MHz
	Supported modulation	OOK / ASK, 2-FSK, GFSK, MSK
Conformity	Europe	EN 300220, EN 301489, EN 60950, EN 50371

* Range stated is calculated assuming line-of-sight. Actual range will vary based upon specific board integration, antenna selection, and environment.

Related Products

- **AMB4400** (434 MHz) / **AMB2500** (2.4 GHz) RF transceiver
- **AMB4420** (434 MHz) / **AMB8420** (868 MHz) / **AMB2520** (2.4GHz) short range radio module

Ordering information

Item no.	Description
AMB8400	868 MHz RF transceiver module with integrated ceramic-antenna
AMB8400-1	868 MHz RF transceiver module to connect with external antenna

Contact

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