

## Compact Low-Cost Radio Module

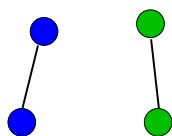
868 MHz ISM Band

### Key Features

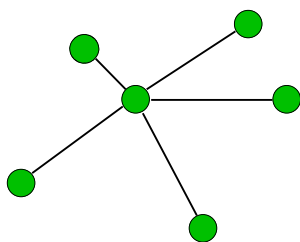
- Low-cost OEM radio module in 868 MHz ISM band
- Compact dimensions: 16 x 27.5 x 3.5 mm
- Supports low-power applications and WOR (wake-on radio)
- Integrated software stack with extensive functions
- Flexible addressing with up to 255 nodes in 255 networks
- Complies with requirements in R&TTE Directive 1999/5/EC
- Can be delivered in tape and reel
- Also available as USB stick version
- Integrated ceramic aerial, optional: external aerial connection



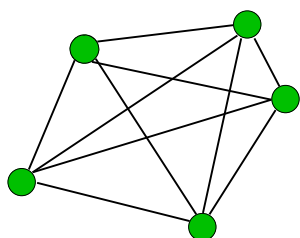
### Network Topologies



Point-to-point



Point-to-Multipoint



Peer-to-Peer

### Description

The AMB8420 is a compact and low-cost radio data transmission module for wireless half-duplex communication. The integrated microprocessor controls data communication, handling packet and checksum formation, addressing, monitoring of channel access and resending unreceived packets. The host system does not have to perform any radio-specific tasks.

The module can be configured in many ways and supports data transfer with fast channel and address switching. Measured field strength (RSSI value) offers the option of enhancing quality of the radio link.

The GUI for the freely available Windows application AMBER-ACC makes it easy to set operating parameters. A USB stick version is available to easily connect the AMB8420 to a PC system.

The AMB8420 is constructed on an SMD design and suitable for automatic component mounting. It can also be delivered in tape and reel packaging.

The AMB4420 and AMB2520 provide pin-compatible modules for the frequency ranges 433 MHz and 2.4 GHz. AMBER wireless also offers customer-specific solutions based on the AMB8420.

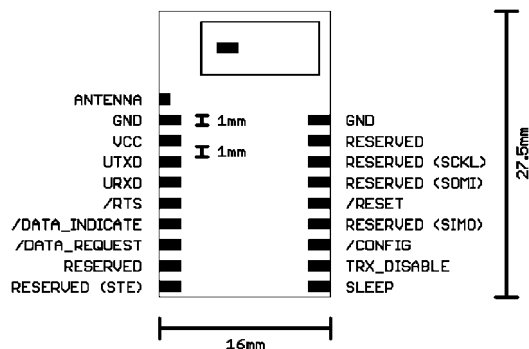
### Interfaces

The AMB8420 is connected to a host system via the UART interface with bit rates of up to 115.2 kbaud. Other pins can be used for data flow control and to switch between operating modes. An SPI interface is included. Using appropriate firmware, the module is also suitable for autonomously recording digital or analogue signals.

### Range of Application

Data collection, monitoring, remote control and sensor networks. Its compact dimensions and low power consumption make the radio module ideal for battery-powered devices.

## Dimensions



## Pin Assignment

Pad Name	Description
VCC	positive supply voltage
GND	negative supply voltage
ANTENNA	Antenna connection (optional)
UTXD, URXD	UART transmit , UART receive
/RTS	ready to send/receive
/DATA_INDICATE	Signals incoming data
/DATA_REQUEST	Starts transmitting
SLEEP, TRX_DISABLE	selection of low-power mode
/CONFIG	Change into command-mode
/RESET*	Reset-Input

## Specifications

Performance	Range*	up to 300 m (integrated antenna) up to 500 m (external antenna)
	RF data rate	up to 250 kbps
	Interface data rate	up to 115.2 kBaud (UART)
	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	2.7 – 3.6 V
	Power consumption	TX: typ. 45 mA RX: typ. 20 mA Low Power: typ. 6 µA
	Dimensions	16.0 x 27.5 x 3.5 mm
	Operating temperature	-30 to +85 °C
	Weight	< 2 g
	Antenna	integrated ceramic-antenna external antenna connection (optional)
RF technology	Addressing	up to 255 nodes on 255 networks
	Frequency range	863.0 – 868.6 MHz
	Channel spacing	50 kHz
	Modulation	2-FSK, MSK
	Supported topologies	Point-to-Point, Point-to-Multipoint, Peer-to-Peer
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

- **AMB8420-EV** Evaluation-Kit
- **AMB8460** USB Stick based on AMB8420
- **AMB4420** (434 MHz) / **AMB2520** (2,4GHz) short range radio module
- **AMB4400** (434 MHz) / **AMB8400** (868 MHz) / **AMB2500** (2.4 GHz) RF transceiver without microprocessor

## Ordering information

Item no.	Description
AMB8420	868 MHz RF module with integrated ceramic-antenna
AMB8420-TR	on Tape & Reel, Reflow solderable, packing unit 400pcs
AMB8420-2	868 MHz RF module to connect with external antenna
AMB8420-2-TR	on Tape & Reel, Reflow solderable, packing unit 400pcs

## Contact

AMBER wireless GmbH  
 Albin-Köbis-Straße 18  
 D-51147 Köln  
 Tel.: +49 2203 98019 0  
 Fax: +49 2203 98019 25  
 E-Mail: [info@amber-wireless.de](mailto:info@amber-wireless.de)  
 Internet: [www.amber-wireless.de](http://www.amber-wireless.de)