868 MHz Radio Module

FEATURES

• Up to 2000 m range

• Long Range mode: up to 10km

• Suitable for long distance applications with low data rates and short distance application with high data rates

• Robust RF protocol stack

• Command mode

• Ultra low energy consumption in Low Power Mode (< 1 µA)

Integrated MCU

32-bit ARM Cortex-M3 Processor with 128kb flash + 20kb RAM

RANGE OF APPLICATION

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

- Optimized current consumption
- Low-cost OEM radio module for the 868 MHz SRD band
- Compact dimensions: 17 x 27 x 4 mm (same as AMB8626,AMB9826)
- Integrated AMBER RF stack with extensive functions
- Flexible addressing with up to 65535 nodes in 255 networks
- Available on Tape & Reel for SMT assembly
- RF compatible to AMB8420, AMB8426 and AMB8626
- ARM Cortex M3 µC
- Powered by TI's CC1310

The AMB8826 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 generation, addressing, monitoring of channel access and re-transmission of lost 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. An opportunity to assess the quality of the radio link is also provided by using the measured field strength (RSSI value).
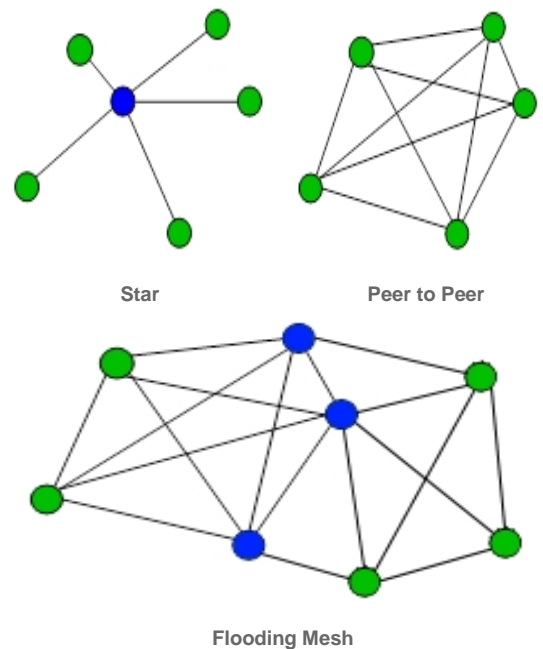
The AMB8826 is connected to a host system via the UART interface with baud rates of up to 115.2 kBaud. A simple command interface in the same style as for AMB8626 is available.

Using appropriate firmware, the module is also suitable for autonomously recording and transmitting digital or analogue signals.

The AMB8826 is an SMT device, suitable for automatic component assembly and available in tape and reel.

Network Topologies

The embedded software protocol stack supports star, peer-to-peer and flooding mesh networks.

Star   **Peer to Peer**

Flooding Mesh

Specifications

TA = 25°C, VCC = 3 V if nothing else stated.

Performance	RF data rate		10 to 100 kcps (gross)
			0.625 to 100 kbps (net)
	UART data rate		Typ. 115200 Baud
	Output power		Up to +14 dBm (@ 50 Ohm)
	RF sensitivity		Down to -124 dBm (@ 50 Ohm, 0.625 kbps)
	Range*		Up to 10 km
General	Power supply		2.2 - 3.8 V
	Power consumption		Tx: typ. 17 mA @ 10dB, 26 mA@ 14dBm
			Rx: 8 mA
			Low Power: typ. 0.2 µA (shutdown)
	Dimensions		17 x 27 x 4 mm
	Operating temperature		-40 to +85 °C
	Weight		Approx. 3 g
	Antenna		Integrated antenna or RF pad
RF-Technology	Addressing		Up to 65535 nodes in 255 networks
	Frequency range		865.00 – 870.00 MHz
	Modulation		(G)FSK, (G)MSK, OOK, DSSS

* Range stated assumes line-of-sight and an antenna height above ground of 6 m. Actual range may vary depending on antenna choice, board design and environment.

Dimensions and Pin Assignment
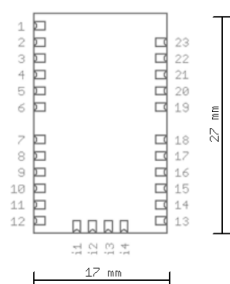
No.	Pad Name	No.	Pad Name
1	RF[1]	23	GND
2	GND	22	IO30 / Reserved
3	VCC	21	IO29 / TX_IND
4	IO3 / TX	20	IO28 / RX_IND
5	IO2 / RX	19	/RESET
6	IO1 / /RTS	18	IO27 / Reserved
7	IO4 / Reserved for /CTS	17	IO26 / Reserved
8	IO5 / Reserved	16	IO25 / Reserved
9	IO6 / Reserved	15	IO24 / Reserved
10	IO7 / Reserved	14	IO23 / Wake-Up
11	IO14 / Reserved	13	IO18 / Reserved
12	IO15 / BOOT	i1 - i4	JTAG

[1] only on AMB8826-1

Ordering Information

Item No.	Description
AMB8826	Radio Module 868 MHz with integrated PCB antenna
AMB8826-1	Radio Module 868 MHz with RF pad
AMB8826-1-EV	Evaluation Kit with Module AMB8826-1
AMB8826(-1)-TR	Radio Module 868 MHz, Tape & Reel

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