868 MHz Radio Module
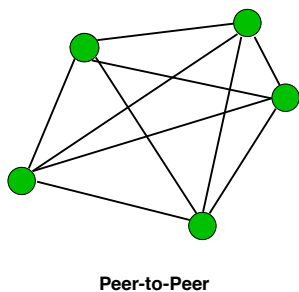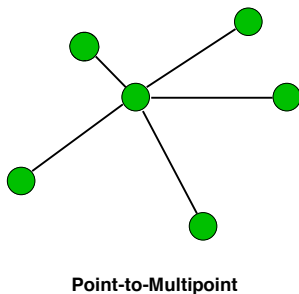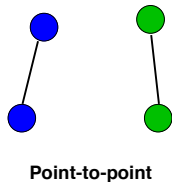# for TI Development Tool eZ430-RF2500

Evaluation Module / Development Tool

Key Features

- Alternative 868 MHz radio module for TI Tool ez430-RF2500
- Over-the-air data rate of up to 500 kbps
- Enables use of SimpliciTI network protocol
- For development purposes only
- Designed exclusively for the European market

Network topologies

Point-to-point

Point-to-Multipoint

Peer-to-Peer

Description

The eZ430-RF2500 from Texas Instruments is a complete wireless development tool (2.4 GHz) for the MSP430 and CC2500. It includes all the hardware and software required to develop an entire wireless project. The AMB8423-EM provides a pin-compatible alternative solution for the 868 MHz frequency band using TI's CC1101. All functions of the boards as well as the interface remain the same. Usage of the AMB8423 radio module requires the adjustment of the radio settings to the new frequency bands. More information concerning the interface and the programming can be found in the TI documentation eZ430-RF2500 User's guide.

Software

AMB8423-EM enables the use of the SimpliciTI network protocol from Texas Instruments. SimpliciTI is a low-power RF protocol aimed at simple, small RF networks. This software is an excellent start for building a network with battery-operated devices using one of TI's MSP430 ultra-low-power MCU and a TI RF transceiver. The entire SimpliciTI package can be downloaded at www.ti.com/simpliciti

Range of Application

868 MHz radio module for eZ430-RF2500. The radio module is designed for development purposes only.

Pin Assignment
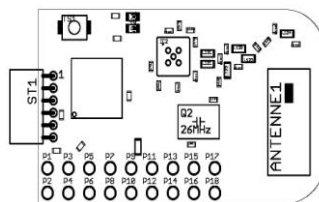
ST1 (connector)

Pin	I/O	Description
1	I	RXD0
2		VCC
3	I	Test/SBWTCK
4	I	#RST/SBWTDIO
5		GND
6	O	TXD0

P1 – P18

Pin	Description	Pin	Description
1	GND	2	VCC_EXT
3	P20	4	P21
5	P22	6	P23
7	P24	8	P43
9	P44	10	P45
11	P46	12	GND
13	GDO0	14	GDO2
15	P32_UCB0SOMI	16	P33_UCB0CLK
17	P30_UCB0STE	18	P31_UCB0SIMO

Specifications

Performance	Range[1]	Up to 300 m
	RF data rate	Up to 500 kbps
	RF output power	Typ.: 2 dBm e.r.p 10 dBm 50 Ω

	RF sensitivity	Typ.: -111 dBm @ 1.2 kBaud, 50 Ω
		  -103 dBm @ 38.4 kBaud, 50 Ω
		  -94 dBm @ 250 kBaud, 50 Ω

General	Supply voltage[2]	1.8 – 3.6 V
	Current consumption	TX: typ. 42 mA (max RF power) RX: typ. 22 mA Sleep: < 3 µA
	Dimensions	38.5 x 20.0 x 3.5mm
	Operating temperature	-30 °C to +85 °C
	Weight	< 2 g
	Antenna	Integrated ceramic antenna
	Microprocessor	Texas Instruments MSP430F2274
	RF transceiver	Texas Instruments CC1101
RF technology	Frequency range	779 – 928 MHz
	Modulation	OOK / ASK, 2-FSK, 4-FSK, GFSK, MSK

[1] Range stated is calculated assuming line-of-sight. Actual range will vary based upon specific board integration, antenna selection, register set-up and environment..

[2] During programming Vmin = 2.2 V. Otherwise: subject to system frequency between 1.8 V @ 4,15 MHz and 3,3 V @ 16 MHz. For more information see data sheet MSP430F2274.

Important Notice

This development tool is intended for use for **ENGINEERING DEVELOPMENT, DEMONSTRATION, OR EVALUATION PURPOSES ONLY** and is not considered by AMBER wireless to be a finished end-product fit for general consumer use.

Persons handling the product must have electronics training and observe good engineering practice standards. As such, this product is not intended to be complete in terms of required conformity to directives, design-, marketing-, and/or manufacturing-related protective considerations, including product safety and environmental measures typically found in end products that incorporate such semiconductor components or circuit boards. Operation of this product may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

This development tool does not fall within the scope of the European Union directives regarding electromagnetic compatibility, recycling (WEEE) or CE, and therefore may not meet the technical requirements of these directives or other related directives.

Ordering information

Article no.	Description
AMB8423-EM	Evaluation Module: 868MHz radio module for TI Tool eZ430-RF2500

Contact

AMBER wireless GmbH
Albin-Köbis-Straße 18
51147 Cologne
Germany

Tel.: +49 (0) 2203-699195-0
E-mail: info@amber-wireless.de
Internet: www.amber-wireless.de

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