KAGA FEI

Wireless Solution

MCU Embedded
Wireless LAN Module
WKM320AA1
Overview

Wireless LAN Module Line Up

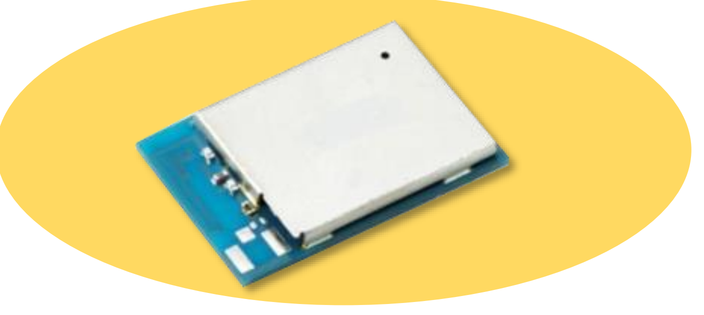
Wireless LAN Module

		IC (NXP)	Part Number	Bluetooth	Antenna	Radio Type Approval	
Host-less Type	**Wireless LAN + MCU** IEEE802.11b/g/n MCU : Cortex-M4F (200MHz) RAM : 512KB Flash ROM : 4MB Interface : **UART, SPI**	88MW320	WKM320AA1	Non supported	Integrated Antenna	☑	 21.4 x 14.0 x 2.4 mm
High Speed Type	**Wireless LAN + Bluetooth®** IEEE802.11ac/a/b/g/n **1x1 SISO** Interface : SDIO3.0, PCM	88W8887	WK8887AA1	☑ v4.2	Integrated Antenna	☑	 24.0 x 11.5 x 2.0 mm

Product Information

◆ The following wireless module is most appropriate for IoT applications in the industrial equipment market such as M2M including robot control, bar code scanning handy terminal, etc., and the environment and energy market such as HEMS for lighting control, smart meter, etc.

- WKM320AA1
  - Possible for customer to develop their own application by using SDK.
  - Possible to integrate customer's application and wireless control software in the module.



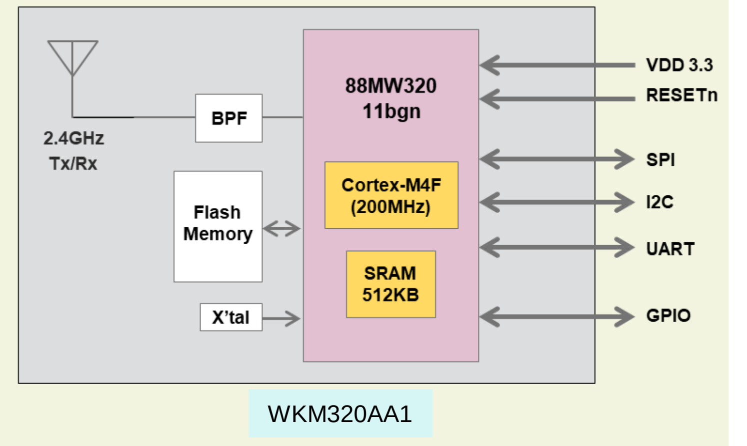
MCU Embedded Wireless LAN Module Blank Module WKM320AA1

WKM320AA1 MCU Embedded 802.11b/g/n Module

Features

- SMD type module. with trace antenna
- IEEE802.11b/g/n conformity.
- Channel Number : 1 to 11 channel
- MCU : ARM Cortex-M4F 200MHz
- Interface : UART (baud rate: 9,600~2,000,000bps)
  SPI, UART, I2C and GPIO
- Built-in WLAN front end, Flash Memory(4MByte), Xtal, Power circuits
- Security : WPA-2 using AES/CCMP along with legacy security features
- Outline : 21.4 x 14.0 x 2.4max mm
- Package : Metal case package
- Japan, FCC and ISED qualified
- CE conducted test report available
- RoHS Conformity

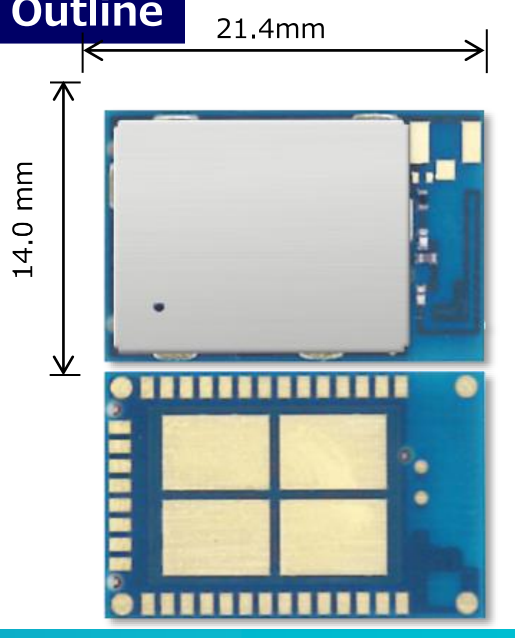
Block Diagram



General Electrical Specification

Parameter	Description	Min.	Typ.	Max.	Units
Frequency Range	11b/ g/ n	2412		2462	MHz
Operation Voltage	VBAT	3.0	3.3	3.6	V
	VIO	3.0	3.3	3.6	V
TX Output Power(11b/g/n)	11b/11g/11n		15 / 9 / 9		dBm
RX Sensitivity (11b/g/n)	11b/11g/11n		-86 / -71 / -68		dBm
TX Power Consumption	Burst Mode 11b		165		mA
RX Power Consumption	Mode 11n-HT20		82		mA
Power Consumption	Sleep Mode		0.6		mA
Operating Temperature		-30		85	deg-C

Outline

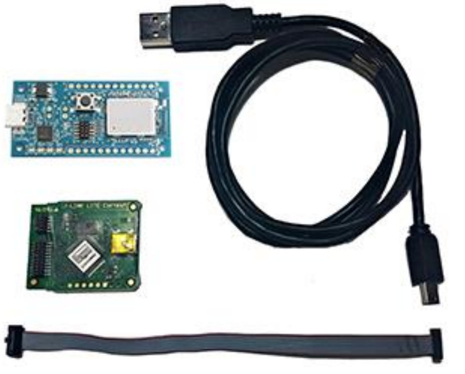


WKM320AA1-EVB and WKM320AA1-EVK are evaluation board and evaluation kit for WKM320AA1.
They are useful for evaluation of RF characteristics and software development at the early stage of development.

*J-Link LITE is required to write customer’s software into the module.

WKM320AA1-EVK includes:

No.	Item	Description	Qty
1	WKM320AA1-EVB	Evaluation Board for WLAN module WKM320AA1 with USB mini-B interface	1
2	Debug tool	J Link Lite: Debug probe for software development Flat cable: Connect the JTAG signals between WKM320AA1-EVB and J-Link LITE USB cable: Connect J-Link Lite to PC	1



WKM320AA-EVK

WKM320AA1-EVB includes:

No.	Item	Description	Qty
1	WKM320AA1-EVB	Evaluation Board for WLAN module WKM320AA1 with USB mini-B interface	1

WKM320AA1-EVB

SDK for MCU Embedded module

NXP SDK

- Provided by NXP
- Free of charge (*SLA required)
- Non-support

NXP SDK	
OS	Free RTOS
License	GPL (General Public License)
Document	English
Configuration	Source code changes
Customer support	Non-support
Reliability	By customers
Maintenance	By customers
Contract development of application	Non-support

*SLA: Software License Agreement

NXP SDK Solution for WKM320AA1

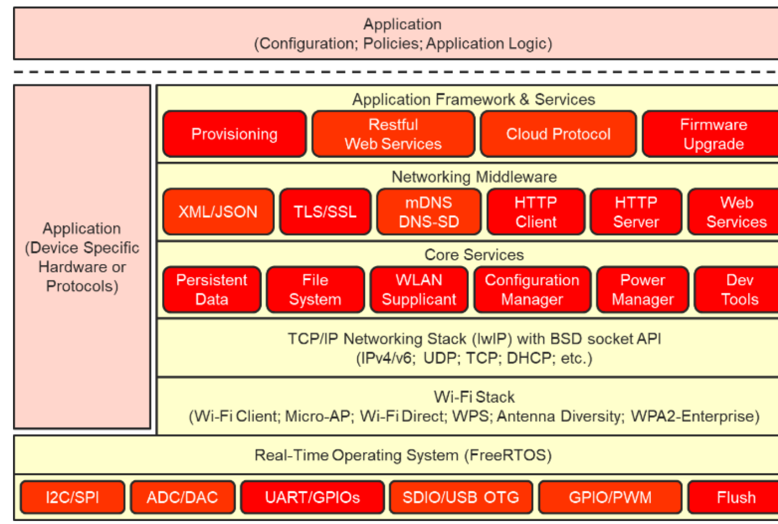
The software packages and the configuration of NXP SDK for WKM320AA1 are as follows.

◆ Software packages that can be provided

① Sample application package (Trial version)
The customers who purchased WKM320AA1-EVK/EVB can obtain it from an access-limited site for registered users.
*Please check the leaflet that was supplied with EVK/EVB.
Contains sample application/MFG tools in binary format and documentation.

② MCUXpresso-SDK (A set of source code)
You can use NXP's SDK for product development purposes.
If you wish to obtain the SDK, you need to sign a sublicense agreement (SLA) based on the license agreement between NXP and KAGA FEI.
This includes the source code and documentation.

◆ NXP MCUXpresso-SDK structure



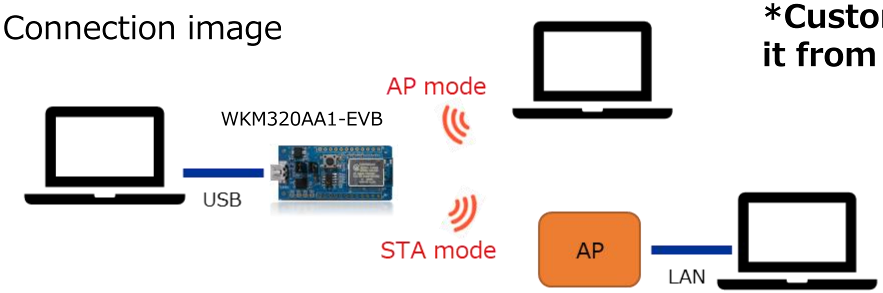
Please contact KAGA FEI about obtaining the software package.

Sample application package (Trial version)

How to obtain	Document name	Content
Publicly available on the web	Overview (This document)	Module overview (HW specifications, Package offerings, SDK types, Documents, Introduction of Licenses)
	EVB & EVK Manual	Evaluation board and Evaluation kit manuals (Operation image, Block diagram, Pin description, Circuit diagram, Antenna characteristics)
Provided on access-limited site	User guide	Overall software structure, Sample application operation method, Firmware rewriting.

How to obtain	Binary format	Function	Description
Provided on access-limited site	WKM320-EVB-MCUXpresso_v2.9.12_s1.bin	WLAN scan	Search for nearby wireless LAN devices.
		STA mode	Operate as STA and connect to AP.
		AP mode	Operate in AP mode and connect from the opposite terminal.
		Ping cmd	Check bidirectional connectivity using the Ping command.
		Iperf cmd	Measure the effective communication speed with high-load data transmission and reception.
	WKM320-EVB-MFG_V6.0.r7.p3-s1.bin	MFG(Labtool)	Measurement tool for wireless characteristic evaluation and certification acquisition.

Connection image



***Customers who purchased WKM320AA1-EVK/EVB can obtain it from an access-limited site for registered users.**

MCUXpresso-SDK (A set of source code)

KAGA FEI

How to obtain	Document name	Content
Publicly available on the web	Overview (This document)	Module overview (HW specifications, Package offerings, SDK types, Documents, Introduction of Licenses)
	EVB & EVK Manual	Evaluation board and Evaluation kit manuals (Operation image, Block diagram, Pin description, Circuit diagram, Antenna characteristics)
Provided under SLA contract	MCUXpresso SDK Release Notes for RDMW320-R0	Release notes.
	Getting Started with MCUXpresso SDK for RDMW320-R0	Developer tutorial.
	MCUXpresso SDK API Reference Manual_88MW320	Reference manual of internal data structure for application developers
	AN13231-Support-for-Flash-Devices-in-88MW320-MCUXpresso-SDK	Procedural instructions for defining serial FLASH devices.
	MCUXpresso_SDK_WLAN_Driver_Reference_Manual	Reference manual of internal data structure for wireless LAN driver developers.
	UM11584-Wi-Fi-Driver-Debug-Configuration-Guide-for-MCUXpresso-SDK	Configuration and procedural instructions for debugging wireless LAN drivers.
	UM11598-NXP-Wi-Fi-Demo-Applications-for-RDMW320-R0-Platform-User-Guide	Instructions on how to build, debug, flash and run wireless LAN sample application, and how to set up the IDE configuration and necessary tools.

How to obtain	File name	Content
Provided under SLA contract	SDK_2_9_12_88MW320_xx_xxxx.zip	A set of NXP's MCUXpresso-SDK source code

***You need to sign a sublicense agreement (SLA) based on the license agreement between NXP and KAGA FEI.**

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