PAN9310/9320 Series

Embedded WiFi Modules for Easy Deployment

Panasonic introduces a fully embedded WiFi module with an integrated stack and API that minimizes firmware development and includes a full security suite. The **PAN9310/9320 Series** is a standalone 2.4GHz WiFi module, supporting the IEEE 802.11 b/g/n standards designed for applications where a small form factor and high throughput data rates are required.

The module is a cost-effective, power efficient solution for WLAN applications. The **PAN9310/9320 Series** combines a high performance CPU, high sensitivity (-98dBm) wireless radio, baseband processor, medium access controller, encryption unit, boot ROM with patching capability, internal SRAM and in-system programmable flash memory. The module's integrated memory is available to the application to store web content such as html pages or image data.

Coincident support of access point and infrastructure modes enable easy setup up allowing WiFi connections from the **PAN9310/9320 Series** to smart devices and home network routers, simultaniously. WLAN SoC firmware enables client (STA), micro access point (uAP) and Ad-hoc mode (Wi-Fi direct) applications. Transparent mode permits data to be sent from the **PAN9310/9320 Series** UART unmodified to the air interface to smart devices, web servers or pc applications.

The **PAN9310/9320 Series** is qualified to the IEEE 802.11 b/g/n standards. All Panasonic Bluetooth RF modules carry FCC, IC, CE and Bluetooth certifications. Panasonic calibrates and tests every module eliminating a time consuming application production process and cost. Panasonic cost engineering lowers component count and the application BOM. With a fully shielded case, integrated crystal oscillators and chip antenna contained in a footprint of just 29 x 13.5 x 2.66 mm³.

[1]Qualified Projects Only

Experimenter Kit

Panasonic's designer friendly **EVAL_PAN9320EMK** experimenter kit reduces design efforts and critical time to market. Product design cycles are greatly reduced using Panasonic's free of charge reference design and design review services . Software available from Marvell® contains applications, demonstrations and utilities that execute on the **PAN9320 Series**.
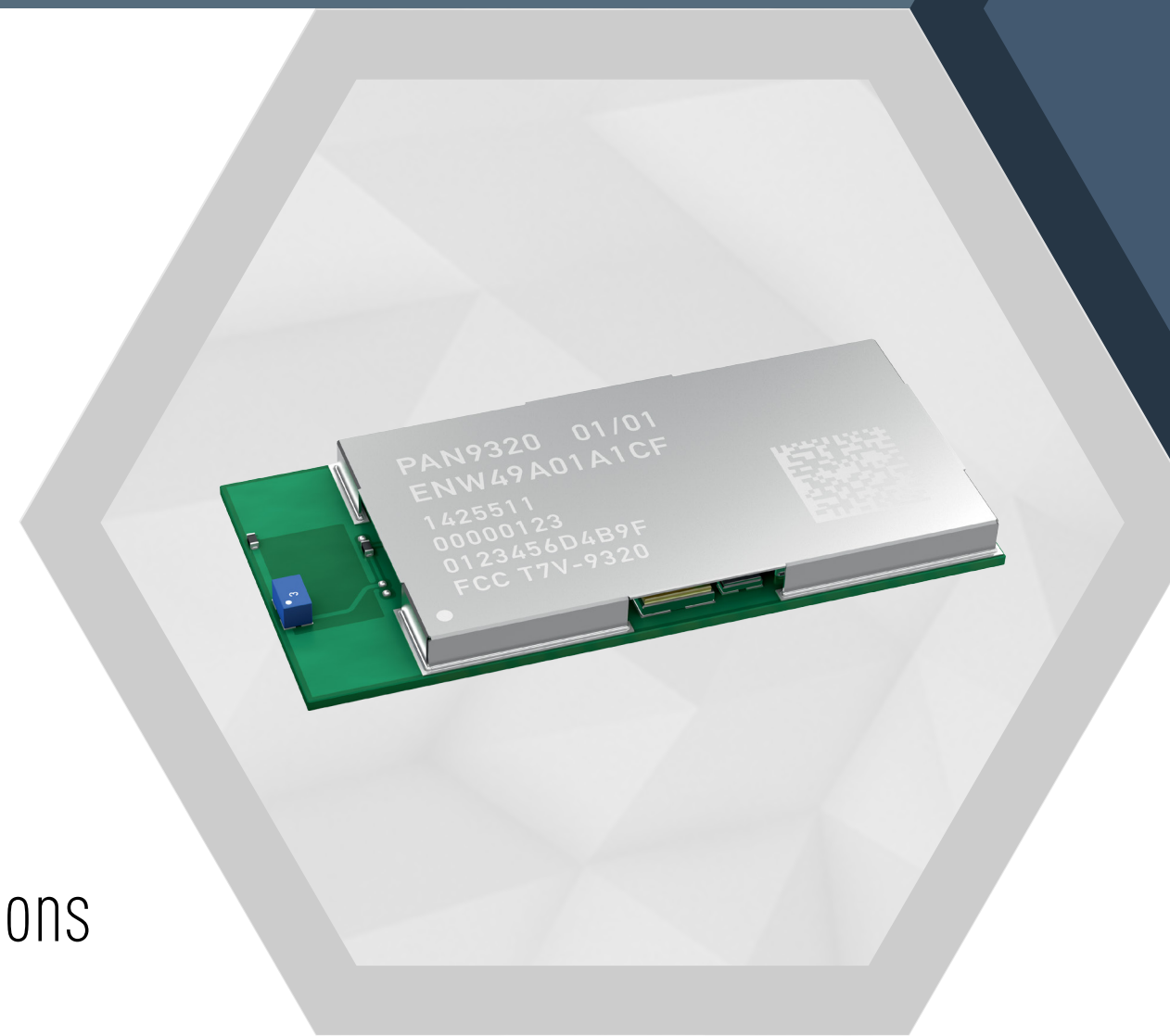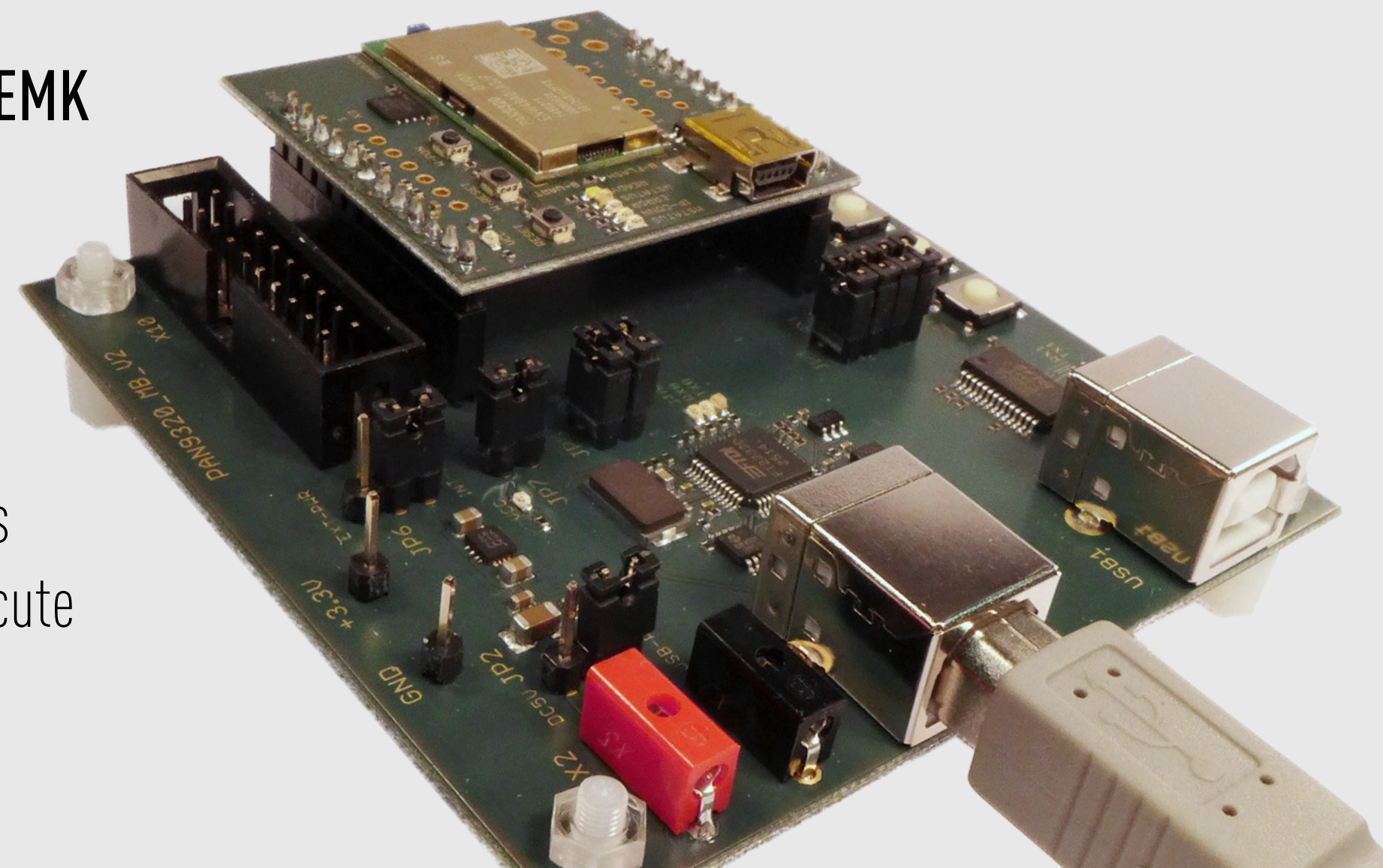
WiFigurator Software

Create detailed session log-files with Panasonic's exclusive Windows based **WiFigurator.** Read and write important values such as: Firmware Version, WiFi Driver Version, SSID, IP Address and Security Parameters.

PAN9310/9320 Series

Features

Surface Mount Type 29.0 x 13.5 x 2.66 mm³

Fully Embedded WiFi module (with integrated MCU, Radio, WiFi stack, antenna and crystals)

Tx Power up to +18 dBm (IEEE 802.11b CCK) and 14dBm (IEEE 802.11g ODFM)

High Rx Sensitivity -98 dBm (IEEE 802.11b DSSS 1Mbps)

Telnet, HTTP, AJAX and JSON Interfaces

Simultaneous Access point and Infrastructure modes

Supports TLS/SSL, https and WiFi security (WPA2) for Secure Data Connections

Plug-n-Play Name Services (DHCP, DNS) and Custom Name Access (http://yourdevice)

Wireless Update of Radio Driver and MCU Firmware with Integrated Bootloader

Marvell® 88W8782 WLAN System-on-Chip (SoC) and 88MC200 (MCU) Inside

Integrated, Extendable 1.5MB Flash for Web Content and Configuration File

Easy to use Evaluation Board for Quick Development and Reduced time to Market

Use of Web Technologies (HTML, JavaScript), no need for Wi-Fi Stack implementation

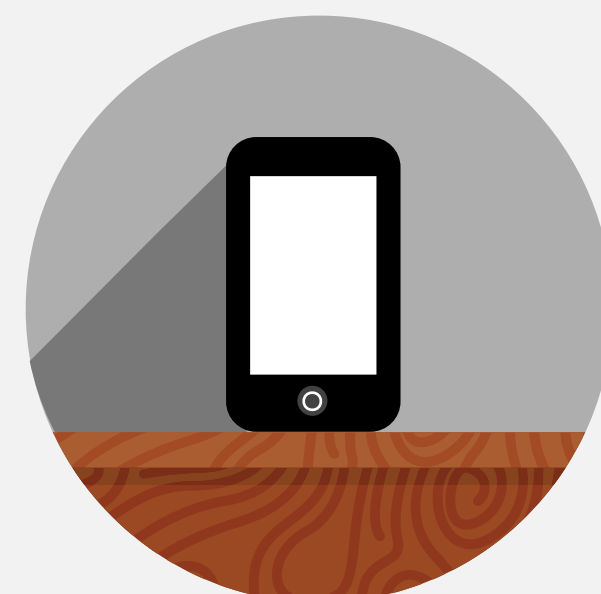Ready to use internet access (integrated Email Server and Cloud Communication Client)

Getting started Tutorials, Libraries, and APIs

Evaluation and Development software Wifigurator for Windows
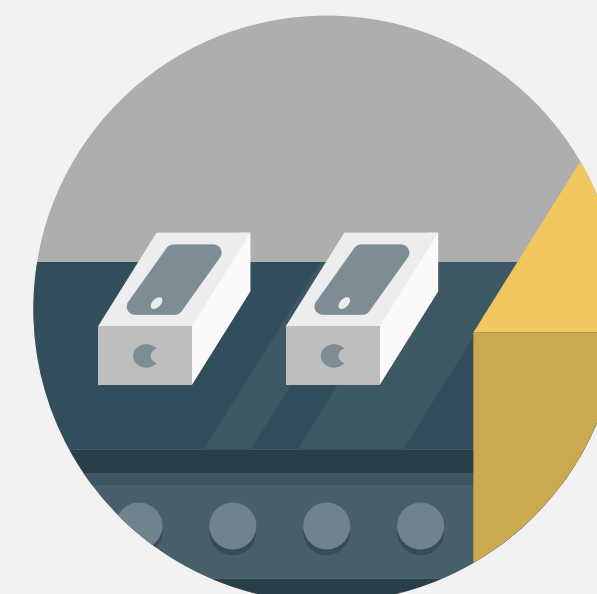
Applications

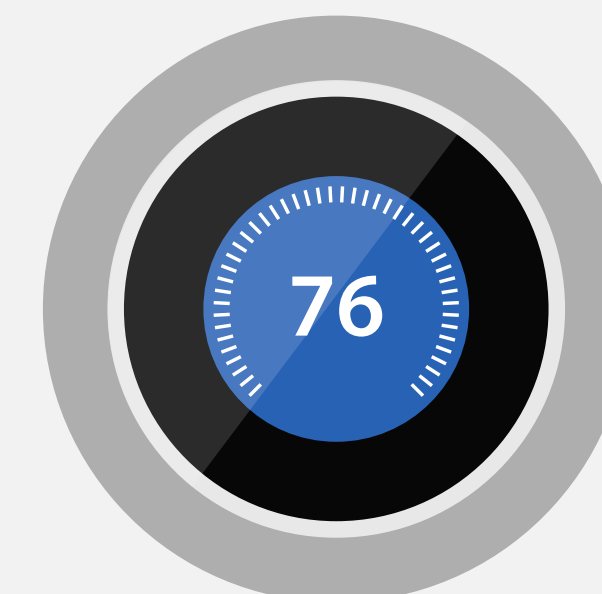Wearables   Portable Electronics   Asset Tracking   Medical   Industrial Controls   Building Management   Gaming Platforms

PAN9310/9320 Series

Technical Parameters

Parameter	Value	Condition / Note
Software		Full Embedded
Rx Sensitivity	-98 dBm	@ 1M-DSSS*
Tx Power	+18 dBm	@ 11b
Power Supply	3.0 to 3.6 V	
Current Consupmtion	430 mA, 160 mA	Tx, Rx max @ 11b
Centre Frequency	2.4 GHz	802.11 b/g/n
Operating Temperature Range	-30 to 70°C	
Size	29.0 x 13.5 x 2.66	mm

Part Number Information

Part Number	Description
ENW-49A01A3EF	PAN9320 Series, Embedded WiFi module, VIPAR stack., -30-70°C, chip antenna
ENW-49A01C3EF	PAN9310 Series, Embedded WiFi module, VIPAR stack., -30-70°C, 50 ohm pad
EVAL_PAN9320EMK	PAN9320 Experimenter Kit, motherboard and daughter board
EVAL_PAN9320ETU	PAN9320 daughter board

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Block Diagram

WC

PAN9320

Vcc 3.3V

RESET n / PDn

Wake UP 0/1

JTAG

UART0 (command)

UART1 (Data)

Q-SPI (ext FLASH)

Status LED's

GPIO's

MCU READY

Factory Reset

DC/DC Step-down Converter

3.3V

Microcontroller Unit

AHB Bus
- DMA
- Flash Cntl

Debug
- JTAG
- SWD

MPU

ADN Unit
- OSC
- RTC
- PMU
- PMIP

3.3V

Connectivity
- UART
- Q-SPI
- GPIO
- SDIO

I/O Multiplexer

Memory
- ROM
- SRAM
- FLASH

Analog Unit
- OSC/PLL

System Unit
- Timer
- WDT
- ADC/DAC
- T-Sensor
- ACOMP

Crystal 32 MHz

Q-SPI Flash

WLAN-SoC

Power Management

Sleep

LDO I/F

1.8V

CPU

CPU BUS

- CPU I/F
- Encryption
- ROM
- SRAM

CONTROL BUS

802.11 MAC Baseband

WLAN RF Direct Conversion

SPDT

- JTAG
- UART
- LED Screen
- GPIO
- OTP
- SDIO

Peripheral Bus Unit

SDIO Controller

OSC PLL

Crystal 32 MHz

Ceramic Chip Antenna

2.4 GHz

LPF

2.4GHz TX/RX