







Engineered with design simplicity in mind, Panasonic's RF Modules provide a superior developer experience and shortens time to market due to the quick implementation of Bluetooth® communication. Bluetooth® Modules by Panasonic deliver best-in-class power efficiency and enable any application requiring long battery life.

	Bluetooth® Classic & Bluetooth® Low Energy		Bluetooth® Low Energy			
						
Series	PAN1316C/PAN1326C	PAN1026A	PAN1760A	PAN1761	PAN1720 / PAN1721	PAN1740
Status	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production
Part Number	ENW89823x4KF*	ENW89837A5KF	ENW89847A3KF	ENW89848A1KF	ENW898xxxxKF*	ENW89846A1KF
RF Category	Bluetooth® Dual Mode Bluetooth® v4.2 class 1.5	Bluetooth® Dual Mode Bluetooth® v4.2 class 2	Bluetooth® Low Energy v4.2	Bluetooth® Low Energy v4.1 + NFC Tag Type 3	Bluetooth® Low Energy v4.0	Bluetooth® Low Energy v4.2
Software / Profile	HCI	SPP and GATT	Embedded Profiles / AT-Command Mode	Embedded Profiles	nBlue™ by BlueRadios Inc. / TI SW stack	Embedded Profiles
Used ICs	CC2564C	TC35661-551	TC35678	TC35670-006	CC2540 / CC2541	DA14580
Size [mm]	9.0 x 9.5 x 1.8	15.6 x 8.7 x 1.8	15.6 x 8.7 x 1.9	15.6 x 8.7 x 1.8	15.6 x 8.7 x 1.8	9.0 x 9.5 x 1.8
Rx Sensitivity [dBm]	-93	-89	-93	-90	-94	-93
Tx Power (max.) [dBm]	+10	+4	+0	+0	+4 / 0	+0
Power Supply [V]	1.8 to 4.8	2.8 to 3.6	1.8 to 3.6	1.8 to 3.6	2.0 to 3.6	2.35 to 3.3
Current Consumption (max.)	Tx, EDR: 40mA Sleep Mode: 135µA	ACL, DH1: 46mA Sleep Mode: <2mA	Tx: 3.3mA Rx: 3.3mA Deep Sleep Mode: 50nA	Tx: 5.5mA Rx: 5.5mA Sleep Mode: <0.1µA	Tx: 23mA @ -6dBm Rx: 18mA Sleep Mode: <1µA	Tx: 4.9mA Rx: 4.9mA Sleep Mode: <1µA
Interfaces	GPIO, PCM, UART	GPIO, UART	GPIO, UART, SPI, I²C, ADC	GPIO, UART, I²C, NFC Wake-Up, etc.	GPIO, UART, USB only PAN17x0* Series	GPIO, UART, SPI, I²C, 3-axis QD, ADC
Microcontroller and Memory		ARM 7	Cortex M0, 192KB on-chip RAM, 256KB Flash	ARM 7, 32KB on-chip RAM, 64KB EEPROM, 1.5KB EEPROM NFC memory	8051 µC, 8KB RAM, 256KB Flash	ARM Cortex M0, 32KB OTP, 42KB SRAM / external non-volatile memory
Operating Temp. [°C]	-40 to +85	-40 to +85	-40 to +85	-30 to +85	-40 to +85	-40 to +85
Evaluation Kit	ENW89819AYKF (EMK)	ENW89837AUKF (KIT) ENW89837AWKF (EMK)	ENW89847AWKF (KIT)	ENW89848AVKF (EMK)	ENW898xxAY2F* (BR KIT) ENW898xxAY1F* (TI KIT)	ENW89846AYKF (KIT) ENW89846AVKF (EMK)

Panasonic Industrial Europe GmbH
eu.industrial.panasonic.com
wireless.connectivity@eu.panasonic.com





- Design and specification are subject to change without notice.
- Ask Panasonic for technical specification before purchase and/or use.
- If there is any doubt regarding the safety of this product, kindly inform Panasonic immediately for technical consultation.

- Qualification of all products: CE, FCC, IC, Bluetooth® QDID if applicable.
- Different software/profile options available.
- Non antenna version for some modules available.

* x is a parameter to be defined.

Status of engineering sample (ES) are expected as of the time of leaflet production.
 The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.
 and any use of such marks by Panasonic is under license. Other trademarks and trade names
 are those of their respective owners.

Long life, reliability and excellent performance - Panasonic's Place & Play IoT Wi-Fi® Modules come with an optional integrated webserver, certificate based security and simultaneous access point and infrastructure mode.

	Wi-Fi®		Bluetooth® & Wi-Fi®	
				
Series	PAN9420	PAN9010/PAN9020	PAN9026	PAN9045/PAN9055
Status	Mass Production	Mass Production	Mass Production	Pre-Production
Part Number	ENW49C02A3KF (CE) ENW49C01A3KF (FCC)	ENW49801x1JF* (USB) ENW49802x1JF* (SDIO)	ENWF9201A1EF* (SDIO)	ENWF9101x1JF* (commercial grade) ENWF9101x1EF* (extended grade)
RF Category	Wi-Fi Embedded 802.11 b/g/n	Wi-Fi Radio 802.11 b/g/n	Combo Radio Wi-Fi 802.11 a/b/g/n (2.4 GHz & 5.0 GHz) + Bluetooth® Dual Mode BLE v4.2 class 1	Combo Radio Wi-Fi 802.11 b/g/n (2.4 GHz) (MIMO 2x2) + Bluetooth® Dual Mode BLE v4.0 class 1
Software / Profile	Full Embedded	Linux / Android Driver	Linux / Android Driver	Linux / Android Driver
Used ICs	88MW300	88W8782	88W8977	88W8797
Size [mm]	29.0 x 13.5 x 2.66	22.75 x 13.5 x 2.42	17.5 x 10.0 x 2.6	26.0 x 13.5 x 2.4
Rx Sensitivity [dBm]	-97 @ 1M-DSSS	-98 @ 1M-DSSS	-98 @ 1M-DSSS	-98 @ 1M-DSSS
Tx Power (max.) [dBm]	+16 @ 11b	+18 @ 11b	+17 @ 11b	+18 @ 11b
Power Supply [V]	3.0 to 3.6	3.0 to 3.6	1.8 to 3.3	3.0 to 3.6
Current Consumption (max.)	Tx: 310mA @ 11Mbps Rx: 75mA @ 11Mbps Power Down: < 1 mA	Tx: 400mA @ 11Mbps Rx: 105mA @ 11Mbps Power Down: 200µA	Tx: 400mA @ 11Mbps Rx: 70mA @ 11Mbps Power Down: tbd	Tx: 580mA @ 300Mbps Rx: 310mA @ 300Mbps Sleep Mode: tbd
Interfaces	2 x UART	USB 2.0 or SDIO	SDIO 3.0, HS UART	USB 2.0, SDIO 3.0, HS UART
Microcontroller and Memory	Cortex M4F, 4 MB Flash			
Operating Temp. [°C]	-40 to +85	0 to +70	-30 to +85	0 to +70 (commercial grade) -30 to +85 (extended grade)
Evaluation Kit	ENW49C01AZKF (ETU) ENW49C01AYKF (EMK)	ENW49802AYJF (KIT)	ENWF9201AZEF (ETU) ENWF9201AYEF (KIT)	ENWF9101AYEF (KIT)

* x is a parameter to be defined.