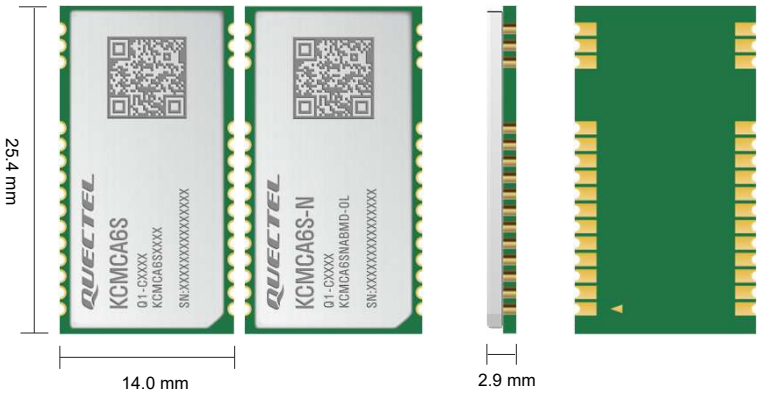
Quectel KCMCA6S series

WM-Bus & Sub-GHz Module LCC Package



KCMCA6S series are Sub-GHz wireless modules launched by Quectel, featuring an ARM Cortex-M33 processor with a frequency of up to 78 MHz, and integrate 32 KB RAM and 256 KB flash. It supports the WM-Bus protocol and complies with the EN 13757-4 standard, and also be used for Sub-GHz proprietary protocols.

KCMCA6S series are in a LCC form factor with an ultra-compact dimensions of 25.4 mm × 14.0 mm × 2.9 mm, which optimize the size and cost for end-products and are compatible with diverse designs. Among them, KCMCA6S has built-in SAW (Surface Acoustic Wave Filter), which can greatly improve the signal interference from cellular communication device.

KCMCA6S series support multiple WM-Bus communication modes (T, C, S, R, N*, F*) and deliver efficient transmission through a low-power architecture, dynamic multi-mode switching, and flexible frequency configuration, alongside integrated multi-layer security mechanisms. As a widely adopted standard in Europe for smart metering, they are ideal for smart water/electricity/gas/heat meters and AMI (Advanced Metering Infrastructure) systems, while also demonstrating strong potential in IoT connectivity scenarios.

Key Features

- Frequency bands: 868 MHz, 169 MHz*, 433 MHz, 915/920MHz*, 315 MHz*
- 32 KB SRAM and 256 KB flash
- 1 USART, 1 SWD and 11 GPIO interfaces by default, with additional support for EUSART, I2C and ADC interfaces through pin multiplexing
- Pin antenna
- Operating temperature range: -40 °C to +85 °C

WM-Bus | LCC Form Factor | Compact Size

Multiple Interfaces | Operating Temperature Range: -40 °C to +85 °C | Long-Range Transmission

Version: 1.0.0 | Status: Preliminary

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WM-Bus	KCMCA6S series
Bluetooth Protocol	Sub-GHz, WM-Bus, Proprietary*
Frequency Band	868 MHz, 169 MHz*, 433 MHz, 915/920MHz*, 315 MHz*
Modulation Mode	2/4 FSK, OQPSK, DSSS, (G)MSK, OOK
Encryption Mode	AES-128/ AES-256*/ ECC*/ SHA-1*/ SHA-2*
Operating Mode	T, C, S, R, N*, F*
Antenna	× 1 (pin antenna interface)
Kernel	ARM Cortex-M33 (up to78 MHz)
RAM	32 KB
Flash	256 KB
Dimensions	25.4 mm × 14.0 mm × 2.9 mm
Weight	Approx. 1.57 g
Temperature Range	
Operating Temperature Range	-40 °C to +85 °C
Storage Temperature Range	-45 °C to +95 °C
Certifications	
Regulatory	**Europe:** CE **America:** FCC* **Canada:** IC* **Australia/New Zealand:** RCM* **China:** SRRC*
Interfaces	
Interfaces①	USART/ SWD/ I2C , etc.
Electrical Features	
Power Supply Voltage	VBAT：1.71-3.8 V, Typ. 3.3 V

WM-Bus Transmitting Performance （868MHz）					
Characteristics Value	**Mode**	**Min.**	**Typ.**	**Max.**	**Unit**
Center Frequency Offset (Meter to Other Device)	T1, T2	868.9	868.95	869	MHz
Center Frequency Offset (Other Device to Meter)	T2	868.278	868.3	868.322	MHz
FSK Modulation Frequency Offset (Meter to Other Device)	T1, T2	± 40	± 50	± 80	kHz
FSK Modulation Frequency Offset (Other Device to Meter)	T2	± 40	± 50	± 80	kHz
Chip Transmitting Rate (Meter to Other Device)	T1, T2	90	100	110	kcps
Chip Transmitting Rate (Other Device to Meter)	T2	-	32.768	-	kcps
Transmitting Rate (Meter to Other Device)	T1, T2	13	13.5	14	dBm
	T2	13	13.5	14	dBm

WM-Bus Receiving Performance (A frame size of 20 bytes)		
Frequency (MHz)	**PER < %**	**Receiver Sensitivity (dBm)**
868.95	80	-105
	20	-103
	0	-94

NOTE:

1.①: The CE certification for the 868MHz frequency band has been obtained.
2.② : See hardware design manual for details of the module interfaces.
3.*: Under development/Ongoing.

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Module	Ordering Code	SAW	Flash	Transmit Power	Operating Temperature Range	Frequency Band	Applicable Regions	Development Board (Only for Debugging)
KCMCA6S	KCMCA6SABMD-0L	Supported	256 KB	≤ 14 dBm	-40 °C to +85 °C	868 MHz	Europe	KCMCA6SABTB-0L
KCMCA6S-N	KCMCA6SNABMD-0L	-	256 KB	≤ 14 dBm	-40 °C to +85 °C	868 MHz	Europe	KCMCA6SNABTB-0L
KCMCA6S-N433	KCMCA6SN433ABMD-0L	-	256 KB	≤ 14 dBm	-40 °C to +85 °C	433 MHz	Europe, China, Southeast Asia, South America, Australia, Africa	KCMCA6SN433ABTB-0L
KCMCA6S-N915*	KCMCA6SN915ABMD-0L*	-	256 KB	≤ 14 dBm	-40 °C to +85 °C	915/920 MHz*	North America、Japan Africa、Australia	KCMCA6SN915ABTB-0L*
KCMCA6S-N315*	TBD	-	256 KB	≤ 14 dBm	-40 °C to +85 °C	315 MHz*	North America	TBD

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