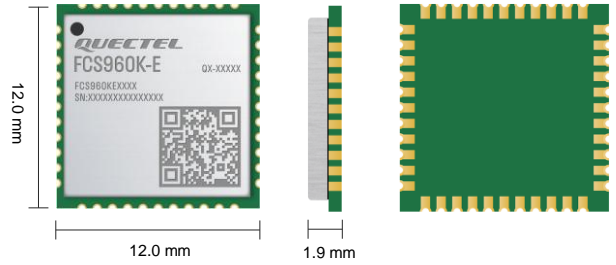


Quectel FCS960K-E

Wi-Fi 6 & Bluetooth 5.4 Module Ultra-compact LCC Package



FCS960K-E is a high-performance Wi-Fi 6 and Bluetooth 5.4 module launched by Quectel, which can be used for WLAN and Bluetooth connections. The module complies with IEEE 802.11a/b/g/n/ac/ax protocol, supports 2.4 GHz and 5 GHz Wi-Fi bands as well as 1T1R mode, and the maximum transmission rate can reach 600.4 Mbps. FCS960K-E features a reliable SDIO 3.0/USB 2.0 interface to support high-speed WLAN transmission, as well as UART and PCM interfaces for Bluetooth applications.

FCS960K-E is in an LCC form factor with an ultra-compact size of 12.0 mm × 12.0 mm × 1.9 mm, which optimizes the size and cost for end-products and fully meets the demands of size-sensitive applications.

Surface-mount Technology (SMT) makes FCS960K-E an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that FCS960K-E can be easily embedded into size-constrained applications and provide reliable connectivity with these applications. The advanced package, integrated shielding cover and the laser-engraved label with better heat dissipation and indelible markings allow for large-scale automated manufacturing that has strict requirements on cost and efficiency. Coupled with its compact size and wide operating temperature range, FCS960K-E can meet various needs of commercial and industrial applications.



Key Features

- ✓ 2.4 GHz/ 5 GHz Wi-Fi bands and Bluetooth 5.4
- ✓ Wi-Fi/Bluetooth antenna 1 × 1
- ✓ SDIO 3.0 interface that supports higher data transmission and enables lower power consumption
- ✓ LCC package, convenient for welding
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide operating temperature range: -40 °C to +85 °C



IEEE 802.11
a/b/g/n/ac/ax



Bluetooth 5.4



LCC Package



SDIO 3.0
Interface



Operating Temperature
Range: -40 °C to +85 °C



Ultra-compact
Size

Quectel FCS960K-E

Wi-Fi 6 & Bluetooth 5.4	FCS960K-E
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz
Wi-Fi/Bluetooth Antenna	1 × 1
Wi-Fi Modulation Mode	DSSS, CCK, DBPSK, DQPSK, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
2.4 GHz Channel Bandwidth	20 MHz/ 40 MHz
5 GHz Channel Bandwidth	20 MHz/ 40 MHz/ 80 MHz
Encryption Mode	WEP/ WPA/ WPA2/ WPA3-SAE
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	Bluetooth 5.4
Dimensions	12.0 mm × 12.0 mm × 1.9 mm
Weight	Approx. 0.55 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-45 °C to +95 °C
Physical Rate (Max.)	
802.11b	11 Mbps
802.11a/g	54 Mbps
802.11n	150 Mbps
802.11ac	433.3 Mbps
802.11ax	600.4 Mbps
Interfaces	
SDIO 3.0	× 1 (for Wi-Fi)
USB 2.0	× 1 (for Wi-Fi)
UART	× 1 (for Bluetooth)
PCM	× 1 (for Bluetooth audio)
Wi-Fi/Bluetooth Antenna Interface	× 1 (ANT_WIFI/BT ^①)
Bluetooth Antenna Interface (Optional)	× 1 (ANT_BT)
Electrical Features	
Power Supply Voltage	VBAT: 3.0–3.6 V, Typ. 3.3 V
I/O Power Supply Voltage	VDD_IO: 1.7–3.6 V, Typ. 1.8 V/ 3.3 V
Power Consumption	Max. current at Tx mode: 189.76 mA @VBAT
Certifications	
Regulatory	Europe: CE America: FCC Canada: IC China: SRRC Australia/New Zealand: RCM

NOTE:
①: In single antenna solution, ANT_WIFI/BT serves as Wi-Fi and Bluetooth shared antenna and ANT_BT is kept unconnected. In two-antenna solution, exclusive Bluetooth antenna (ANT_BT) is supported and ANT_WIFI/BT only serves as Wi-Fi antenna. For more details, please contact Quectel Technical Support.

Wi-Fi 6 & Bluetooth 5.4		FCS960K-E	
Wi-Fi Performance			
		Transmit Power (Typ.)	Receiver Sensitivity (Typ.)
2.4 GHz	802.11b/1 Mbps	18 dBm	-97 dBm
	802.11b/11 Mbps	18 dBm	-88 dBm
	802.11g/6 Mbps	17 dBm	-91 dBm
	802.11g/54 Mbps	15 dBm	-76 dBm
	802.11n/HT20 MCS 0	17 dBm	-90 dBm
	802.11n/HT20 MCS 7	15 dBm	-73 dBm
	802.11n/HT40 MCS 0	17 dBm	-88 dBm
	802.11n/HT40 MCS 7	15 dBm	-70 dBm
	802.11ax/HE20 MCS 0	17 dBm	-93 dBm
	802.11ax/HE20 MCS 11	13 dBm	-64 dBm
	802.11ax/HE40 MCS 0	17 dBm	-88 dBm
	802.11ax/HE40 MCS 11	13 dBm	-61 dBm
5 GHz	802.11a/6 Mbps	17 dBm	-91 dBm
	802.11a/54 Mbps	15 dBm	-76 dBm
	802.11n/HT20 MCS 0	17 dBm	-91 dBm
	802.11n/HT20 MCS 7	15 dBm	-74 dBm
	802.11n/HT40 MCS 0	17 dBm	-87 dBm
	802.11n/HT40 MCS 7	15 dBm	-72 dBm
	802.11ac/VHT20 MCS 0	17 dBm	-90 dBm
	802.11ac/VHT20 MCS 8	14 dBm	-69 dBm
	802.11ac/VHT40 MCS 0	17 dBm	-88 dBm
	802.11ac/VHT40 MCS 9	13 dBm	-64 dBm
	802.11ac/VHT80 MCS 0	17 dBm	-84 dBm
	802.11ac/VHT80 MCS 9	13 dBm	-60 dBm
	802.11ax/HE20 MCS 0	16 dBm	-89 dBm
	802.11ax/HE20 MCS 11	12 dBm	-61 dBm
	802.11ax/HE40 MCS 0	16 dBm	-87 dBm
	802.11ax/HE40 MCS 11	12 dBm	-59 dBm
	802.11ax/HE80 MCS 0	16 dBm	-85 dBm
	802.11ax/HE80 MCS 11	12 dBm	-56 dBm
Bluetooth Performance			
		Transmit Power (Typ.)	Receiver Sensitivity (Typ.)
BR		4 dBm	-89 dBm
EDR (π/4-DQPSK)		4 dBm	-89 dBm
EDR (8-DPSK)		4 dBm	-89 dBm
BLE (1 Mbps)		4 dBm	-90 dBm
BLE (2 Mbps)		4 dBm	-89 dBm

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FCS960K-E	FCS960KEAAMD	Single antenna solution: Wi-Fi and Bluetooth shared one antenna	-	-	FCS960KEAAM2
FCS960K-E	FCS960KEBAAMD	Two-antenna solution: A dedicated Wi-Fi antenna and an exclusive Bluetooth antenna	-	-	FCS960KEBAAM2