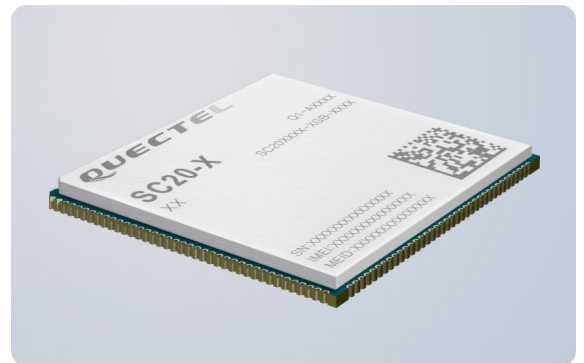


Quectel SC20

Multi-mode Smart LTE Module with Wi-Fi & Bluetooth



SC20 is Quectel’s new generation of multi-mode Smart LTE Cat 4 module with built-in Android OS. It contains seven variants: SC20-CE, SC20-E, SC20-A, SC20-AU, SC20-J, SC20-EU and Wi-Fi & BT only version SC20-W.

SC20 delivers maximally 150Mbps downlink and 50Mbps uplink data rates based on LTE network, and additionally supports wireless communication via IEEE 802.11 a/b/g/n (IEEE 802.11 b/g/n for SC20-CE/SC20-W by default) and BT4.1 LE (BT4.2 on Android 7.1 or later versions). It is ideal for both industrial and consumer applications requiring high data rate and high-speed internet access. SC20 is backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can be connected even in remote areas devoid of 3G or LTE coverage.

SC20 supports multiple-input multiple-output (MIMO) technology. The use of multiple antennas at the receiver end at the same time and on the same frequency band greatly minimizes errors and optimizes the data speed. The module also combines high-speed wireless connectivity with embedded multi-constellation and high-sensitivity GNSS (GPS, GLONASS and BeiDou) receiver for positioning.

A rich set of interfaces (such as LCM, Camera, Touch Panel, MIC, SPK, UART, USB, I2C) extend the applicability of the module to a wide range of M2M applications, such as MID, PND, POS, router, data card, in-vehicle solutions, smartphone, digital signage, security and industrial PDA.

Key Benefits

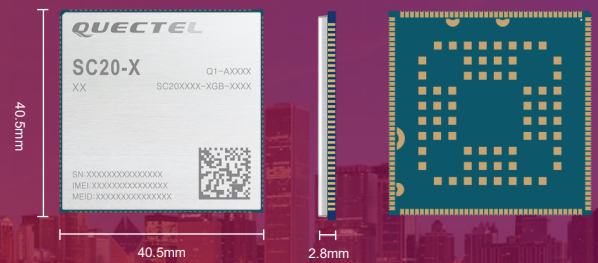
- ✓ Integrates Android OS, Wi-Fi, Bluetooth and GNSS into one module
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ LCC+LGA package ensures reliable connectivity with applications

 4G LTE Smart LTE Cat 4 Max 150Mbps (DL) Max 50Mbps (UL)	 3G HSPA+ Max 42Mbps (DL) Max 5.76Mbps (UL)	 Android OS
 IEEE 802.11 a/b/g/n	 BT4.2 (BR/EDR+BLE)	 Multi-constellation GNSS
 Powerful Multimedia Function	 USB 2.0 High Speed Interface	 LCC+LGA Package

Rev.: V1.8 | Status: Released

Quectel SC20

Multi-mode Smart LTE Module with Wi-Fi & Bluetooth



Variant for China

SC20-CE:

LTE FDD: B1/B3/B5/B8
LTE TDD: B38/B39/B40/B41
TD-SCDMA: B34/B39
EVDO/CDMA: BCO
WCDMA: B1/B8
GSM: 900/1800MHz

Variant for EMEA/Korea/Thailand/India

SC20-E:

LTE FDD: B1/B3/B5/B7/B8/B20
LTE TDD: B38/B40/B41
WCDMA: B1/B5/B8
GSM: 850/900/1800/1900MHz

Variant for North America

SC20-A:

LTE FDD: B2/B4/B5/B7/B12/B13/B25/B26
WCDMA: B1/B2/B4/B5/B8
GSM: 850/1900MHz

Variant for Australia/Taiwan/Brazil

SC20-AU:

LTE FDD: B1/B3/B5/B7/B8/B28
LTE TDD: B40
WCDMA: B1/B2/B5/B8
GSM: 850/900/1800/1900MHz

Variant for Japan

SC20-J:

LTE FDD: B1/B3/B8/B18/B19/B26
LTE TDD: B41
WCDMA: B1/B6/B8/B19

Variant for EMEA/Korea/Thailand/India

SC20-EU:

LTE FDD: B1/B2^①/B3/B5^①/B7/B8/B20/B28A
LTE TDD: B38/B41^②
WCDMA: B1/B2/B5/B8
GSM: 850/900/1800/1900MHz

Variant for the Global

SC20-W:

Only Support Wi-Fi & BT

Data

LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)
LTE TDD: Max 130Mbps (DL)/Max 30Mbps (UL)

UMTS:

DC-HSDPA: Max 42Mbps (DL)
HSUPA: Max 5.76Mbps (UL)
WCDMA: Max 384Kbps (DL/UL)

TD-SCDMA:

Max 4.2Mbps (DL)/Max 2.2Mbps (UL)

CDMA2000:

EVDO: Max 3.1Mbps (DL)/Max 1.8Mbps (UL)
1X Advanced: Max 307.2Kbps (DL/UL)

GSM:

GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)

Audio & Video

Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

Echo Arithmetic:

Echo Cancellation/Noise Reduction

VoLTE: VoLTE (Voice over LTE) Supported

Audio: MP3, AAC+, eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro

Video:

Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8)

Decode: 30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263)

Interfaces

LCM:

4-lane MIPI_DSI, up to 1.5Gbps/lane
HD (720P) @60fps

Camera:

Use MIPI_CSI, up to 1.5Gbps/lane

Support Two Cameras:

2-lane MIPI_CSI for Rear Camera, up to 8MP

1-lane MIPI_CSI for Front Camera, up to 2MP

Touch Panel:

Capacitive Touch Panel

Audio: 2 analog audio inputs and 3 analog audio outputs

USB 2.0: × 1, Support USB OTG

UART: × 2 (Support 4Mbps with Hardware Flow Control)

SD Card: × 1 (3.0, 4-bit SDIO)

(U)SIM: × 2 (1.8V/2.95V)

I2C: × 3

ADC: × 1, General-purpose ADC interface

SPI: × 1, Multiplexed from GPIO

GPIO: × 25

PMW: × 1

Motor Drive: × 1

Keypad: PWRKEY, VOL UP, VOL DOWN

Antenna: 4 Solder Pads for Main/Diversity/GNSS/Wi-Fi&BT Antennas, Respectively

Electrical Characteristics

Supply Voltage: 3.5V~4.2V, 3.8V Typ.

Consumption: 20uA @Power off
3mA @Sleep, Typ.

Output Power:

Class 3 (23dBm±2dB) for LTE FDD Bands

Class 3 (23dBm±2dB) for LTE TDD Bands

Class 3 (24dBm+1/-3dB) for WCDMA Bands

Class 2 (24dBm+1/-3dB) for TD-SCDMA Bands

Class 3 (24dBm+3/-1dB) for EVDO/CDMA BCO

Class 4 (33dBm±2dB) for GSM850 and EGSM900

Class 1 (30dBm±2dB) for DCS1800 and PCS1900

Class E2 (27dBm±3dB) for GSM850 and EGSM900

8-PSK

Class E2 (26dBm±3dB) for DCS1800 and PCS1900

8-PSK

Sensitivity:

LTE FDD B1: -102dBm LTE TDD B39: -101dBm

LTE FDD B2: -101dBm LTE TDD B40: -100dBm

LTE FDD B3: -101dBm LTE TDD B41: -100dBm

LTE FDD B4: -101dBm WCDMA B1: -110dBm

LTE FDD B5: -101dBm WCDMA B2: -110dBm

LTE FDD B7: -100dBm WCDMA B4: -110dBm

LTE FDD B8: -101dBm WCDMA B5: -110dBm

LTE FDD B12: -100dBm WCDMA B6: -110dBm

LTE FDD B13: -100dBm WCDMA B8: -110dBm

LTE FDD B18: -100dBm WCDMA B19: -110dBm

LTE FDD B19: -100dBm TD-SCDMA: -108dBm

LTE FDD B20: -99dBm EVDO/CDMA: -109dBm

LTE FDD B25: -99dBm GSM 850: -109dBm

LTE FDD B26: -99dBm EGSM 900: -109dBm

LTE FDD B28: -99dBm DCS 1800: -109dBm

LTE TDD B38: -100dBm PCS 1900: -109dBm

Enhanced Features

WLAN:

SC20-E/-A/-AU/-J/-EU: 2.4G/5G, 802.11 a/b/g/n

SC20-CE/-W: 2.4G, 802.11 b/g/n (Default)

2.4G/5G, 802.11 a/b/g/n (Optional)

Bluetooth:

BT2.1+EDR/3.0/4.1/4.2LE (BT4.2 on Android 7.1 or later versions)

GNSS: GPS/GLONASS/BeiDou

Support 3GPP E-UTRA Release 10

Bandwidth: 1.4/3/5/10/15/20MHz

Support Rx-diversity, DL MIMO 2 × 2

(U)SIM Card Detection

Firmware Upgrade via USB

General Features

OS: Android 5.1/6.0/7.1

Memory: 8GB eMMC+1GB LPDDR3

16GB eMMC+2GB LPDDR3

Temperature Range: -40°C ~ +75°C

Dimensions: 40.5mm × 40.5mm × 2.8mm

Package: LCC + LGA

Weight: Approx. 9.8g

Approvals

RoHS/REACH

CE/GCF (Europe)

FCC/PTCRB/AT&T/Verizon (North America)

RCM/Telstra (Australia)

Anatel (Brazil)

IC (Canada)

JATE/TELEC (Japan)

CCC/SRRC/NAL (China)

①: LTE B2 and B5 of SC20-EU do not support Rx-diversity

②: LTE B41 for SC20-EU is optional and not certified by GCF