

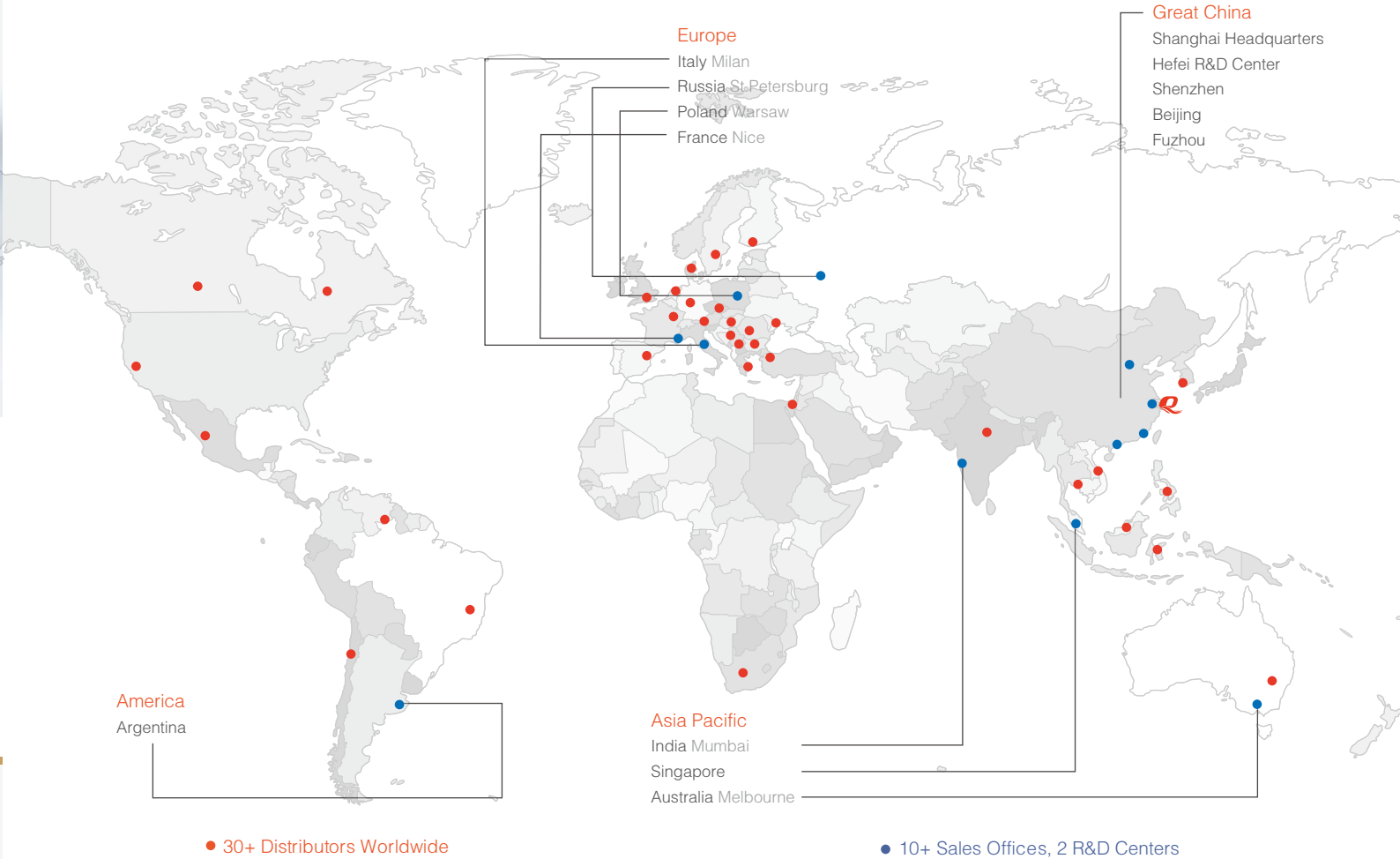


QUECTEL
Wireless Module Expert

LEDDY
WIRELESS®

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Global Presence



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Appearance						
Pictures						
	M10 GSM/GPRS	M12 GSM/GPRS	M72 GSM/GPRS	M75 GSM/GPRS	M80 GSM/GPRS	M95 GSM/GPRS
Packaging	64-pin SMD Quad-band module	64-pin SMD Dual-band module	30-pin SMD Dual-band module	30-pin SMD Dual-band module	110-pin SMD Quad-band module	42-pin SMD Quad-band module
General Features						
Frequency Range	850/900/1800/1900 MHz	900/1800 MHz	900/1800 MHz	900/1800 MHz	850/900/1800/1900 MHz	850/900/1800/1900 MHz
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Temperature Range	-40 °C to +85 °C	-40 °C to +80 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Dimensions	29.0 x 29.0 x 3.6 mm	29.0 x 29.0 x 3.6 mm	27.5 x 24.0 x 3.6 mm	27.5 x 24.0 x 3.6 mm	23.0 x 25.0 x 2.6 mm	19.9 x 23.6 x 2.65 mm
Weight (approx.)	6.0 g	6.0 g	4.3 g	4.3 g	3.3 g	3.0 g
Power Supply	3.3V to 4.6V	3.3V to 4.6V	3.3V to 4.6V	3.3V to 4.6V	3.3V to 4.6V	3.3V to 4.6V
Low Power Consumption	1.3mA @ DRX=5 1.2mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9
Network Protocols						
PPP	✓	✓	✓	-	✓	✓
TCP/UDP	✓	✓	✓	-	✓	✓
HTTP	✓	✓	✓	-	✓	✓
FTP	✓	✓	✓	-	✓	✓
MMS	✓	✓	-	-	✓	-
SMTP	✓	✓	✓	-	✓	✓
MUX	✓	✓	✓	-	✓	✓
Specifications for SMS via GSM / GPRS and CSD						
SMS	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode
CSD	Up to 14.4 kbps	Up to 14.4 kbps	Up to 14.4 kbps	Up to 14.4 kbps	Up to 14.4 kbps	Up to 14.4 kbps
Specifications for Voice						
Speech Codec Modes	HR, FR, EFR, AMR	HR, FR, EFR, AMR	-	-	HR, FR, EFR, AMR	HR, FR, EFR, AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	-	-	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces						
SIM	3V/ 1.8V	3V/ 1.8V	3V/ 1.8V	3V/ 1.8V	3V/ 1.8V	3V/ 1.8V
Audio Analog	2 inputs/ 2 outputs	2 inputs/ 2 outputs	-	-	2 inputs/ 3 outputs	2 inputs/ 2 outputs
Audio Digital	-	-	-	-	✓	-
RTC Backup	✓	✓	✓	✓	✓	✓
UART	3	3	2	2	3	2
GPIO	✓	✓	-	-	-	-
SD Card Interface	✓	✓	-	-	✓	-
ADC	✓	✓	-	-	✓	-
Certificates						
Certificates	CE/FCC/ GCF/ PTCRB/ IC/ NCC/ UCRF/ ICASA/ Rogers ANATEL/ NAL/ China TA	CE/ UCRF	CE/ GCF/ UCRF/ A-Tick	CE/ UCRF/ ICASA	CE/ IC/ FCC/ UCRF/ ANATEL/ ICASA	CE/ FCC/ GCF/ PTCRB/ NCC/ ANATEL/ IC/ ICASA/ UCRF/ A-Tick
Recommended Applications						
	Note: ★: Recommended application fields ; ★★: Highly recommended application fields.					
Automatic Meter Reading	★		★★	★★	★	★★
Automotive	★	★	★	★	★	★
Retail and Payment	★	★	★★	★★	★	★★
Security	★	★	★	★	★	★
Tracking and Tracing	★	★	★	★	★	★★
Remote Maintenance and Control	★	★	★	★	★	★
Mobile Computing	★	★			★	★
Healthcare					★★	★★

Appearance		
Pictures	 U10 UMTS/HSPA	 Recommended UC20 UMTS/HSPA+
Packaging	100-pin board to board connector module	112-pin SMD Multi-band module
General Features		
Frequency Range	UMTS: 850/900/2100 GSM: 850/900/1800/1900	UMTS: 900/ 2100 (UC20-E) 850/ 1900 (UC20-A) GSM: 850/ 900/ 1800/ 1900
HSPA	UL 5.76Mbps DL 7.2Mbps	UL 5.76Mbps DL 14.4Mbps
Temperature Range	-40 °C to +80 °C	-40 °C to +80 °C
Dimensions	37.7 x 29.9 x 5.0 mm	32.0 x 29.0 x 2.5 mm
Weight (approx.)	7.0 g	4.9 g
Power Supply	3.4V to 4.6V	3.4V to 4.3V
Low Power Consumption	1.3mA @ GSM DRX=5 1.2mA @ WCDMA DRX=8	3.3 mA typ.
Network Protocols		
Network Protocols	PPP/ TCP/ UDP/ HTTP/ FTP/ MMS/ SMTP/ MUX/ RTP/ RTCP/ RTSP	PPP/ TCP/ UDP/ HTTP*/ FTP*/ MMS*/ SMTP*
Specifications for SMS via GSM / GPRS and CSD		
SMS	Point-to-point MO & MT SMS cell broadcast Text and PDU mode	Point-to-point MO & MT SMS cell broadcast Text and PDU mode
CSD	14.4 kbps	14.4 kbps
Video Call	√	-
eCall	-	√
GPS	-	√
Specifications for Voice		
Speech Codec Modes	HR, FR, EFR, AMR	HR, FR, EFR, AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Noise reduction
Drive		
USB	Windows CE 6.0, Windows XP, Windows 7, Linux 2.6.x	Windows XP, Windows Vista, Windows 7, Windows8, Windows CE 5.0/6.0, Linux 2.6.x, Android 2.3.x/4.0.x
Interfaces		
SIM	1.8V/ 3V	1.8V/ 3V
Audio Analog	2 Analog Channels	-
PCM	√	√ (Digital audio)
RTC	√	√
UART	3	2
GPIO	√	-
SD Card Interface	√	-
ADC	√	√
USB	√	√
Camera	√	-
RX Diversity	-	√
Certificates		
Certificates	CE	CE*/ FCC*/ GCF*/ PTCRB*/ CCC*/ China TA*
Recommended Applications <small>Note: ★: Recommended application fields ; ★★: Highly recommended application fields.</small>		
Automatic Meter Reading	★★	★★
Automotive	★★	★★
Retail and Payment	★★	★★
Gateway		★★
Security	★★ ★	★
Tracking and Tracing	★	★
Remote Maintenance and Control	★	★
Mobile Computing	★	★★
Healthcare		★

Appearance					
Pictures					 Recommended
	L10 GPS	L20 GPS	L30 GPS	L50 GPS	L70 GPS
Packaging	28-pin SMD GPS module	24-pin SMD GPS module	21-pin SMD GPS module	24-pin SMD GPS module	18-pin SMD GPS module
General Features					
Chip Solution	MT3329	SIRFIV	SIRFIV	SIRFIV	MT3339
Dimensions	22.4 x 17.0 x 3.0 mm	16.0 x 12.2 x 2.4 mm	9.0 x 9.0 x 1.6 mm	28.0 x 16.0 x 3.0 mm	10.1 x 9.7 x 2.5 mm
Weight (approx.)	2.0 g	1.0 g	0.6 g	4.0 g	0.6 g
L1 Band Receiver (C/A Code)	Channel Number	22 Track/66 Acq.	48 Track	48 Track	22 Track/66 Acq.
	SBAS	WAAS, EGNOS, MSAS	WAAS, EGNOS, QZSS	WAAS, EGNOS	WAAS, EGNOS, MSAS, GAGAN
TTFB (Time To First Fix)	Cold Start	<35s	<35s, Autonomous 25s typ. With CGEE	<35s, Autonomous 25s typ. With CGEE	<33s, Autonomous 25s typ. With CGEE
	Warm Start	<35s	<35s, Autonomous 10s typ. With CGEE	<35s, Autonomous 10s typ. With CGEE	<30s, Autonomous 5s typ. With EASY
	Hot Start	<1s	<1s	<1s	<1s
Sensitivity	Autonomous Acquisition	-148dBm	-148dBm	-145dBm	-148dBm
	Reacquisition	-160dBm	-160dBm	-159dBm	-160dBm
	Tracking	-165dBm	-163dBm	-160dBm	-163dBm
Position Accuracy (autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP
Velocity Accuracy (without aid)	<0.1m/s	<0.01m/s	<0.01m/s	<0.01m/s	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²
Timing Accuracy	<61ns	<500ns	<500ns	<500ns	<10ns
Max Update Rate	5Hz	5Hz	1Hz	1Hz	10Hz
Baud Rate (default)	9600bps	4800bps	4800bps	4800bps	9600bps
Anti-jamming	-	✓	✓	✓	✓
Temperature Range	Operating	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
	Storage	-45 °C to +125 °C	-45 °C to +125 °C	-45 °C to +125 °C	-45 °C to +125 °C
Electrical Data					
Power Supply	3.0V to 4.3V	2.0V to 3.6V	1.71V to 1.89V	1.71V to 1.89V	2.8V to 4.3V
I/O Voltage	2.7V to 2.9V	2.0V to 3.6V	1.71V to 1.89V	1.71V to 1.89V	2.7V to 2.9V
Power Consumption	Acquisition	43mA	39mA	40mA	48mA
	Tracking	38mA	36mA	36mA	38mA
	Backup	4uA	33 uA	17uA	20uA
Interfaces					
UART	✓	✓	✓	✓	✓
I ² C (NMEA)	-	-	✓	✓	-
DR I ² C	-	✓	✓	✓	-
Reset	✓	-	✓	✓	✓
Time Pulse	✓	✓	✓	✓	✓
Antenna					
Antenna Detection	Short circuit detection and protection Open circuit detection	-	-	-	-
Antenna Type	Active or passive	Active or passive	Active or passive	Embedded patch antenna	Active or passive
Antenna Power	External or internal	External or internal	External	Internal	External or internal
Recommended Applications					
	Note: ★: Recommended application fields ; ★★: Highly recommended application fields.				
Vehicle Tracking and Tracing	★	★★	★	★	★★
Pet Tracking		★	★	★	★★
Asset Tracking	★	★	★	★	★★
Connected PND	★	★	★	★	★★
GIS Application	★	★	★	★	★
Security	★	★	★	★	★
Industrial PDA		★	★	★	★★
Digital Camera					★★

Appearance			
Pictures	 L16 GLONASS/GPS/QZSS	 L26 GLONASS/GPS/QZSS	 L76 GLONASS/GPS/QZSS
Packaging	28-pin SMD GNSS module	24-pin SMD GNSS module	18-pin SMD GNSS module
General Features			
Chip Solution	ST Teseo II	MT3333	MT3333
Dimensions	22.4 x 17.0 x 3.0 mm	16.0 x 12.2 x 2.4 mm	10.1 x 9.7 x 2.5 mm
Weight (approx.)	2.2 g	1.0 g	0.6 g
L1 Band Receiver (C/A Code)	Channle Number 32 Track/2 fast Acq. SBAS WAAS, EGNOS, MSAS	33 Track/99 Acq. WAAS, EGNOS, MSAS, GAGAN	33 Track/99 Acq. WAAS, EGNOS, MSAS, GAGAN
TTFF (Time To First Fix)	Cold Start <35s, Autonomous <30s, With ST-AGPS Warm Start <24s, Autonomous <5s, With ST-AGPS Hot Start <2.5s	<35s, Autonomous <15s, With EASY <30s, Autonomous <5s, With EASY <1s	<35s, Autonomous <15s, With EASY <30s, Autonomous <5s, With EASY <1s
Sensitivity	Autonomous Acquisition -146dBm Reacquisition -160dBm Tracking -162dBm	-148dBm -160dBm -163dBm	-148dBm -160dBm -163dBm
Position Accuracy (autonomous)	<1.5m CEP	<2.5m CEP	<2.5m CEP
Velocity Accuracy (without aid)	<0.1m/s	<0.01m/s	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²
Timing Accuracy	<15ns	<10ns	<10ns
Max Update Rate	5Hz	10Hz	10Hz
Baud Rate (default)	9600bps	9600bps	9600bps
Anti-jamming	√	√	√
Temperature Range	Operating -40 °C to +85 °C Storage -45 °C to +125 °C	-40 °C to +85 °C -45 °C to +125 °C	-40 °C to +85 °C -45 °C to +125 °C
Electrical Data			
Power Supply	3.0V to 3.6V	2.8V to 4.3V	2.8V to 4.3V
I/O Voltage	3.3V	2.7V to 2.9V	2.7V to 2.9V
Power Consumption	Acquisition 120mA Tracking 85mA Backup 75uA	29mA(GPS+ GLONASS) 26mA(GPS) 21mA(GPS+ GLONASS) 18mA(GPS) 7 uA	25mA(GPS+ GLONASS) 21mA(GPS) 21mA(GPS+ GLONASS) 18mA(GPS) 7uA
Interfaces			
UART	√	√	√
I ² C (NMEA)	-	-	-
DR I ² C	-	-	-
Reset	-	√	√
Time Pulse	√	√	√
Antenna			
Antenna Detection	-	Short circuit detection and protection Open circuit detection	-
Antenna Type	Active or passive	Active or passive	Active or passive
Antenna Power	External or internal	External or internal	External or internal
Recommended Applications			
Vehicle Tracking and Tracing	★ ★	★ ★	★ ★
Pet Tracking	★	★	★ ★
Asset Tracking	★	★ ★	★ ★
Connected PND	★	★ ★	★ ★
GIS Application	★	★	★
Security	★	★	★
Industrial PDA	★	★ ★	★ ★
Digital Camera			★ ★

M2M Technology and Applications

No matter what applications M2M technology is applied to, the core concept is the same, enabling real-time data communication between remote machines and central management applications to enhance the value of the remote device to its user. Within this basic structure of an M2M application, there are many wired and wireless communication options. But the real growth trend lies within embedded cellular M2M, which enables rapid and secure data transfer via GSM/GPRS, UMTS/HSPA networks.

M2M technology is becoming smarter and more mobile. The exciting thing about M2M is that the possibilities are endless in terms of what new innovative devices and applications can be developed that leverage M2M technology. Just like it is very hard to imagine what it is going to be without cell phones only 25 years ago.

M2M technology has spread rapidly throughout a broad range of application areas in recent years, like more reliable data can be generated and transmitted faster, energy consumption can be reduced, logistics process can be managed more efficiently, and the safety of people and property is better ensured. But M2M applications such as automotive, transport and logistics are still the prominent application market for M2M modules; automated metering reading, security, remote payment system, fleet management, telemedicine, and the consumer market are the promising field.

M2M technology ushers in great and tremendous changes. And the era of "Internet of Things" has been a reality for sometime already, which leads to an ever greater acceptance of M2M technology. Some of the key factors driving the market for M2M solutions include growing range of successful applications, regulatory mandates, penetration of 3G technology, and launch of 4G technology. Therefore, developments in M2M applications have been highly sophisticated and advanced. The handling of M2M becomes increasingly easier and production cheaper.

At present, M2M technology can cost-effectively deliver the speed and quality of service that end users require in an M2M application. That's why numerous industries, from healthcare to security to smart metering, are realizing the value of cellular and how it positively affects business models.



Quectel Wireless Solutions – Dedicated Supplier of M2M Wireless Modules

As one of the leading providers of GSM/GPRS, UMTS/HSPA, GNSS modules with many years of extensive experience, Quectel is always looking to be at the forefront of technology and maintaining customer's full satisfaction.

Quectel offers high-performance cellular and GNSS modules based on the state-of-art technology which, already today, is aimed at the tomorrow's demands. To completely satisfy customer's needs, Quectel not only provide a wide product range with numerous integrated features capable of meeting the most sophisticated requirements from all market segment, but also provide comprehensive technical support for developers in the development and testing phase. Additionally, timely help is available from Quectel's software and hardware team throughout customer's development via phone, email and face to face meetings when necessary, which significantly reduces customer's product development time and achieve short time to market.

On all aspects of Quality, Quectel ensures the quality of all modules meet customers' requirements perfectly. Small form factor, low power consumption, ease of integration, long-term availability and suitability for the harsh environment are the key features for Quectel successful products.

Helping customers to stay competitive in their business environment, Quectel provides customers with high quality and innovative wireless modules. Meanwhile, Quectel enhances its product portfolio to fulfill various applications in the M2M market.

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