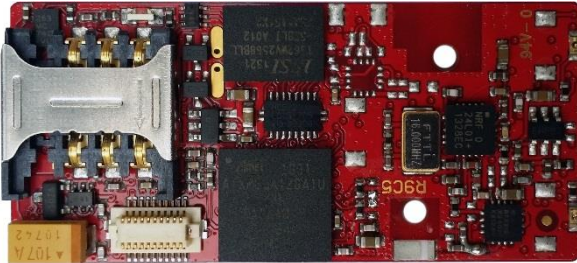


KCS TraceME TM-202 / R9C5

GPS / GPRS / SMS / RFID module, OEM Version



The KCS GPRS/GPS range of modules enables you to remotely track & trace people, animals and a variety of objects, e.g. cars, trucks, containers, (motor)cycles, lawnmowers, boats, etc. KCS TraceME TM-202 / R9C5 is targeted for personal use, or any other application that needs a small size with extremely long battery life. It offers multiple connectivity options and server connections.

Key Features

- Worldwide coverage
 - Quad-band GSM/GPRS
 - GPS
 - UMTS/HSPA (*)
 - Glonass/GPS (*)
- Very small, only 46 x 21 x 6.5 mm.
- Lightweight: 7 grams for the fully equipped PCB, 5 grams for a suitable 250mAh rechargeable battery.
- Ultra low power consumption, down to 3uA.
- Standby battery lifespan of more than 10 years.
- Serial, analog and digital interfaces
- 3 pushbuttons, 3 leds for user interaction.
- 20 pin extension header.
- Excellent GPS accuracy (onboard antenna), A-GPS options.
- Integrated 2.45 GHz radio for special functions and peripherals.
 - Short range, up to 30m
 - Long range, over 1 km range, line of sight (*)
- Onboard sensors:
 - 3D accelerometer up to 16g.
 - Humidity/Temp. sensor (*)
 - 3D magnetic compass (*)
- Wide operating range: -40 °C ... +85°C (using Primary Lithium Cell).
- Multiple watchdog levels for maximum stability.
- Dual charge protection for voltages and temperature range.
- Remote configurable to fit any job (both firmware and configuration files can be updated over the air).
- Configuration can be both Server and Event driven, 300+ different events, up to 4,000 geozones.
- Runs local user scripts via .src files.
- Supports multi server configuration.
- User definable SMS commands.
- Audio with microphone and embedded class AB speaker amplifier. (*)
- Micro-sim and Sim-On-Chip options. (*)

Applications

- Vehicle and boat tracking
- Object protection, up to 10 years of standby on a single Lithium battery.
- Logistics, M2M
- Animal tracking, Asset monitoring
- Security and surveillance
- Remote control and diagnostics
- Anti-theft

(*) Optional, please contact sales for more details.

Product Summary

Equipped with a state-of-the-art GPS receiver, the KCS TraceME TM-202 / R9C5 module provides reliable and accurate navigational data.

All communication is handled effectively by a GPRS/GSM modem (QUAD band version) through GPRS or SMS. In areas without network coverage, position-data and events are stored in memory (up to 120,000 positions). As soon as communication is restored, all information can be transmitted.

Equipped with a 2.45GHz radio the TM-202 enables localization inside buildings and special power saving features for applications like Alzheimer's disease or security people.

A sophisticated 'listen before talk' algorithm makes it practically impossible to locate the module which secures the valuable vehicle or asset. Supporting GPRS/SMS and optional 3G, Bluetooth LE, ANT/ANT+ and iBeacon provides easy integration with existing wireless networks.

All of the necessary server-side scripts to process and store data from these units are available, free of charge. If you do not want to host data and maps yourself, you can use the hosting services of one of our partner companies.

Specifications KCS TraceME TM-202

Data communication

GPRS Modem	Quectel M95 QUAD band, optional UG95 UMTS/HSPA Module, both global certifications and R&TTE directives.
Power saving	Typical power consumption in sleep mode: 1. 3mA @ GSM, DRX = 5 1.2 mA @ GSM, DRX = 9 1.15 mA @ UMTS, DRX=9
Frequency bands	<ul style="list-style-type: none"> • Quad-band GSM850, GSM900, DCS1800, PCS1900 • Dual-band UMTS850/1900 or UMTS900/2100 • Frequency bands can be set by AT command • Compliant with GSM Phase 2/2+
GSM Class	Small MS
Transmitting power	<ul style="list-style-type: none"> • Class 4 (2 W) at GSM850 and GSM900 • Class 1 (1 W) at DCS1800 and PCS1900 • Class 3 (250 mW) at UMTS 850/900/1900/2100
GPRS connectivity	<ul style="list-style-type: none"> • GPRS multi-slot class 12 (default) • GPRS multi-slot class 1~12 (configurable) • GPRS mobile station class B

RF Communication

Radio chip	Nordic nRF24L01+		
Frequency	Worldwide 2.45 GHz. ISM band, 126 channels, GFSK modulation		
Amplifier	RFaxis RFX2401C		
		Without amplifier	With amplifier
RF Tx Power		0, -6, -12, -18 dBm	+20, +14, +8, +2 dBm
RF Rx Sensitivity	2Mbps	-82 dBm (typical)	-90 dBm (typical)
	1Mbps	-85 dBm (typical)	-93 dBm (typical)
	250Kbps	-94 dBm (typical)	-102 dBm (typical)
Ultra low power		13 uA average current use, at 1 RX/TX per second	90 uA average current use, at 1 RX/TX per second, +20 dBm Tx.

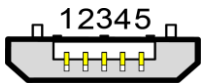
Navigation

GPS Receiver	Quectel L70 GPS module, optional L76 GNSS (Glonass + GPS) module	
Frequency	GPS L1 1575.42 MHz. C/A Code, 48 search channels Glonass L1 1598.0625 ~ 1605.375 C/A Code	
Sensitivity	Acquisition	-148 dBm (typical)
	Reacquisition	-160 dBm (typical)
	Tracking	-165 dBm (typical)
Horizontal Position Accuracy	<2.5 m CEP	

Electrical

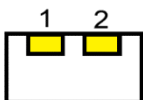
Power supply	5 VDC \pm 10%. Max power consumption via micro-USB: 600 mA
Charging Current (LiPolymer)	450 mA. Observing 0...+45 °C safety range for LiPolymer.
Typical Power Consumption	30 mA, GPS full power tracking, open GPRS session
	6 mA, using AlwaysLocate™
	3 μ A, GPS/GPRS/sensors power down, 4 inputs and 1 timer active

External connections: MICRO-USB



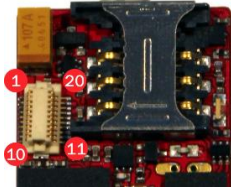
Pin	Signal	Type	Description
1	USB VCC	VCC	+4.5...+5.5 VDC Charge input, max 600 mA
2	Serial IN	I	Serial input or digital input (2..31 V for active high), ~ 50K pulldown
3	Serial OUT	O	Serial or digital output, open collector (max 31 V / 10 mA / 100 mW)
4	Optional	I/O	Optional: Analog Input or digital I/O
5	GND	GND	GND for charge and I/O

External connections: Audio



Pin	Signal	Type	Description
1	N	Speaker Output	Class AB, max 800 mW, negative speaker output
2	P	Speaker Output	Class AB, max 800 mW, positive speaker output

20 pins extension header



Pin	Description	Description	Pin
1	3.4 - 4.5V Board Voltage (direct battery connection, not switched)*	3.4 - 4.5V Board Voltage (switched)	20
2	general IO / TxD 4 open collector , max 30V @ 5mA	3.4 - 4.5V Board Voltage (switched)	19
3	general IO / RxD 4 , logic 0 if 0-0.4 V, logic 1 if 2..30V	Battery temperature sensor*	18
4	Red LED / general IO*	Analog IN 1 (0..1V or 0..30mV, firmware dependant)	17
5	Ground	Ground	16
6	general IO / TxD 5 (2V8 level)	Ground	15
7	general IO / RxD 5 (2V8 level)	4.5 - 5.5V input (parallel to USB power)	14
8	Ground	4.5 - 5.5V input (parallel to USB power)	13
9	Ground	Ground	12
10	reserved, do not connect	reserved, do not connect	11

* Yellow marked pins available from PCB version R9C4 and up, do not connect for older versions.
Maximum current per pin: 300mA

About KCS BV

KCS BV, founded in The Netherlands in 1984, develops and manufactures electronics in-house for industrial applications, medical purposes, broad-casting solutions, etc.

Support

Please visit our support page at: <http://www.trace.me>

Sales

Please contact us by email: trade@trace.me

Final notes & certification

We certify that Kolff Computer Supplies BV, Dordrecht, The Netherlands does not make any hardware or IMEI modifications to the QUECTEL devices as used in the TraceME track & trace device. All software modifications are restricted to official firmware upgrades as provided by Quectel Wireless Solutions Co., Ltd..

KCS is ISO 9001-2008 and ISO-14001 certified since 1999.

WARNING:

- The device should be turned off in vicinity of petrol pumps, chemical, flammable or hazardous environments where ignition of flammable atmospheres is possible.
- The GSM unit and antenna shall be operated at a distance greater than 20 cm from the human body.
- The device is to be operated in accordance with the user instructions or manufactured recommendations.

Disclaimer:

KCS BV reserves the right to make changes without further notice to any products herein to improve reliability, function or design. KCS BV does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

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