

KCS TraceME TM-203 / R9F4 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-203 / R9F4 is targeted for personal use, or any other applications 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 (*)
 - Glonass/GPS
 - Wifi (*)
- Small: only 87 x 22 x 7 mm (*)
 - 13 mm height with external connectivity option
- Lightweight: 15.5 grams for the fully equipped PCB, excl. battery and GSM antenna.
- BASIC I/O, Serial, analog and digital interfaces
- Ultra low power consumption
- 5 to 31VDC power supply
- Robust IP67 housing (*)
- Integrated 2.45 GHz radio for special functions and peripherals (*)
 - Short range, up to 30m (*)
 - Long range, over 1 km range, line of sight
- Portable type: Integrated antennas.
 - External GSM antenna (*)
- Li-ion charger/switcher system seamlessly feeds both the TraceME and GPS receiver from external power source or Li-ion battery.
- Onboard sensors:
 - 3D accelerometer up to 16g.
 - Temperature sensor
 - 3D magnetic compass (*)
- Multiple watchdog levels for maximum stability.
- Wide operating temperature range: -40 °C... +85 °C (using Primary Lithium Cell)
- Dual charge protection for voltages and temperature range.
- Membrane switch interface for buttons and LED's, user configurable.
- 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
- Designed to be used in vehicles and boats
- Micro sim socket
- Complies with automotive safety standard (E-mark)
- Complies with additional standards for insurance benefits (e.g. SCM and Incert)

Applications

- Vehicle and boat tracking
- Object protection and tracking
- Logistics, M2M
- Security and surveillance
- Remote control and diagnostics
- Vehicle immobilization
- Anti-theft
- Asset monitoring

Product Summary

Equipped with a state-of-the-art GPS receiver, the KCS TraceME TM-203 / R9F4 module provides reliable and accurate navigational data.

All communication is handled rapidly and 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 250,000 positions (*)). As soon as communication is restored, all information can be transmitted.

Advanced location-based positioning (LSB) by GSM and RF enables positioning inside buildings and offers special power saving features for applications like Alzheimer's disease or security people.

Another useful feature is the user-configuration menu, which controls all actions like sending position-information, depending on all possible events.

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 many partner companies.

The TM-203 meets the emission limits and immunity levels as described in ECE Regulation 10 (Rev.4) + Corr.1 + Amend. 1 + Amend. 2 and in 2004/104/EC and Amendments 2005/49/EC, 2005/83/EC, 2006/28/EC and 2009/19/EC.

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

Specifications KCS TraceME TM-203 OEM

Data communication

GPRS Modem	Quectel M95 QUAD band, global certifications and R&TTE directives.
Power saving	Typical power consumption in sleep mode: 1.3 mA @ GSM, DRX = 5 1.2 mA @ GSM, DRX = 9
Frequency bands	<ul style="list-style-type: none"> • Quad-band GSM850, GSM900, DCS1800, PCS1900 • 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 (2W) at GSM850 and GSM900 • Class 1 (1W) at DCS1800 and PCS1900
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	-82dBm (typical)	-90dBm (typical)
	1Mbps	-85dBm (typical)	-93dBm (typical)
	250Kbps	-94dBm (typical)	-102dBm (typical)
Ultra low power		13uA average current use, at 1 RX/TX per second	90uA average current use, at 1 RX/TX per second, +20dBm Tx.

Navigation

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

Operating Temperature Conditions

With Primary Lithium Cell	-40 °C ... +85 °C (discharging only)
With rechargeable LiPo Cell (*)(**)	-20 °C ... +60 °C (discharging) 0 °C ... +45 °C (charging)

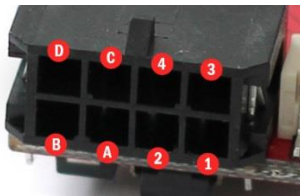
(*) Without (charged) battery, it is not possible to transmit data via GPRS. Normal operating like GPS tracking will continue, data will be stored in flash and transmitted at a later time, when the battery has been recharged.

(**) Extended temperature range LiPo batteries available on request.

Electrical

Power supply	Maximum range: +5...+31 VDC
Charging Current	Max 450mA. Higher charging currents (for batteries with higher capacity) on request.
Power Consumption	<0.1mW standby (typical): GPS off, hot start possible. GSM off. Processor monitors timer + vibration sensor + I/O, watchdog on, brownout detection on.
	Power per fix: < 1.3 mAh, including cold start of GPS, GSM power-up and transmission via GPRS or SMS.
	150 mW tracking: GPS always on, GPRS active, GPRS session open.
	Power consumption depends on amount of GPRS traffic and navigation parameters.

External connections

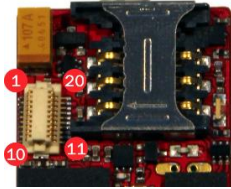


Pin	Signal	Type	Description
1	GND	GND	Ground for VCC and IO
2	VCC	VCC	+5 to +31VDC charge input and power supply
3	GND	0	Ground for VCC and IO
4	Analog In 5	I	Digital/Analog Input #5 0..35V
A	Serial In/Out	I/O	3V serial Tx1/Rx1 or analog input 1 0..3V
B	Analog in 1	I/O	Digital/Analog Input #1 0..35V, open collector output 1 (150mA), Hardware pulse counter (*)
C	Board Voltage	0	Optional board voltage 5 Volt max 1 Amp
D	Analog in 2	I/O	Digital/Analog input #2 0..35V, open collector output 2 (150mA)

(*) The internal hardware pulse counter is combined with input 1. It has an internal pull-up making the input measure a voltage close to 3 Volt when nothing is connected. Since default settings determine a voltage like that to be digitally active, the input may always seem active unless you:

- do not keep the input floating.
- use a switch level of 4Volt or higher in the settings.
- disable the hardware pulse counter in the settings which also disables the internal pull-up.

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 R9F4 and up, do not connect for older versions.
Max 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. Since 1999 KCS is ISO 9001-2008 and ISO 14001-2008 certified.

Support

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

Sales

Please contact us at 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:

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