

### KCS TraceME TM-R9B3 / R9A10 GPS / GPRS / SMS module



The TM-R9B3 / R9A10 is a mid-range product line member of KCS' advanced TraceME track and trace modules. The TM-R9B3 is targeted for remotely tracing and controlling vehicles and other powered equipment.

The TM-R9B3 offers excellent quad-band GSM/GPRS coverage and is equipped with a low-power GPS receiver. The module is equipped with multiple on-board sensors, low-level I/O-connectivity and a rechargeable integrated battery. It offers accurate location based position data to be connected to any existing worldwide server application.

### Key Features

- National telecom & worldwide satellite coverage
  - Quad-band GSM/GPRS
  - UMTS/HSPA (\*)
  - GPS
  - Glonass/GPS (\*)
- Micro SIM socket
- Low power consumption, down to 100uA.
- Robust aluminum enclosure 90 x 67 x 20mm.
- 3 LEDs for user interaction.
- Excellent Glonass/GPS accuracy, external antenna.
- Onboard sensors:
  - 3D accelerometer up to 16g.
  - Temperature sensor ( $\pm 0.5^{\circ}\text{C}$ )
- Wide operating range:  $-40^{\circ}\text{C}$  ...  $+85^{\circ}\text{C}$  (Excluding optional LiPo battery Cell).
- Multiple watchdog levels for maximum stability.
- 6 to 31VDC power supply
- 5V / 1A power supply for peripherals
- Versatile interfacing:
  - Digital and analog
  - 2x Serial (3V / RS232)
  - iButton™ / 1-Wire™
  - Digital tachograph (\*)
  - Garmin FMI™ (\*)
- Event based free configurable module to fit any job; 300+ different events and 4,000+ geozones.
- Remote maintenance. Both firmware and configuration files can be updated over the air.
- Runs local user scripts via .src files.
- User definable SMS commands.
- Supports integration into third party networks.

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

### Applications

- Vehicle and boat tracking
- Public transport / Railway industry
- Logistics, M2M
- Security and surveillance
- Remote control and diagnostics
- Anti-theft

### Product Summary

Equipped with a state-of-the-art GPS receiver, the TM-R9B3 / R9A10 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.

The TM-R9B3 / R9A10 module is equipped with external power and battery connection and contains basic I/O-connectivity and multiple on-board sensors offering easy integration into many applications.

The functionality of the module can be remotely programmed to fit any job. From basic/general functionality to advanced/low-level application specific detailed functionality.

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

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

### Ordering information

- TM-R9B3 Basic version (basic I/O-functionality)
- (\*) Optional, please contact sales for more details

#### Related products:

- TM-186LAQ Full version (full I/O-functionality)
- TM-186BLE Full version + Long-range RF
- TM-186C Full version + CAN or RS485-interface

## Specifications KCS TraceME TM-R9B3

### Data communication

GPRS Modem	Quectel M95 QUAD band, optional UG95(-A or -E) UMTS/HSPA Module, optional UG96 UMTS/HSPA Module, all 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"> <li>• Quad-band GSM850, GSM900, DCS1800, PCS1900</li> <li>• Dual-band UMTS850/1900 or UMTS900/2100</li> <li>• Five-band UMTS800/850/900/1900/2100</li> <li>• Frequency bands can be set by AT command</li> <li>• Compliant with GSM Phase 2/2+</li> </ul>
GSM Class	Small MS
Transmitting power	<ul style="list-style-type: none"> <li>• Class 4 (2 W) at GSM850 and GSM900</li> <li>• Class 1 (1 W) at DCS1800 and PCS1900</li> <li>• Class 3 (250 mW) at UMTS 800/850/900/1900/2100</li> </ul>
GPRS connectivity	<ul style="list-style-type: none"> <li>• GPRS multi-slot class 1~12 (configurable)</li> <li>• GPRS mobile station class B</li> </ul>

### 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	External +6...+31VDC
Charging Current (LiPolymer)	450 mA. Observing 0...+45 °C safety range for LiPolymer.
Typical Power Consumption	20 mA, GPS full power tracking, open GPRS session
	6 mA, using AlwaysLocate™
	100 uA, GPS/GPRS/sensors power down, 4 inputs and 1 timer active

## External Connections

External antenna connectors



GSM/GPRS	External GSM/GPRS antenna (*)
GPS	External GPS antenna (*)

(\*) Please contact sales for more details.

## External Connections

Front view Power and I/O-connectors



Pin	Signal	Type	Description
1	GND for VCC	GND	Ground for VCC
2	VCC	VCC	+6...+31VDC or VCC Charge input
3	GND for I/O	GND	Ground for I/O
4	Digital/Analog_In5	I	Digital/Analog Input 5 (0..31V)
A	Serial in/out	I/O	3 Volt serial transmit/receive, iButton, Input IN3
B	Digital OUT1 + IN1	I/O	- Digital/Analog input #1 (0..31V) - open collector max. 31V/160mA, protected via Polyswitch fuse - or hardware pulse counter
C	Board voltage	O	Max. 250mA
D	Digital OUT2 + IN2	I/O	- Digital/Analog input #2 (0..31V) - Digital output (open collector max. 31V/160mA, protected via Polyswitch fuse) - TxD2 open collector

(\*\*)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.

## 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

Visit our support page at: [www.trace.me](http://www.trace.me)

## Sales

Contact us by email: [trade@trace.me](mailto: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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