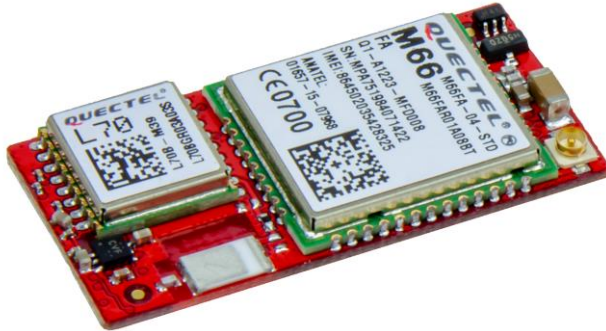


KCS TraceME TM-231 / R9M2 GPS / GPRS / SMS module



The KCS TraceME TM-231 / R9M2 is one of the smallest and lightest GPRS/GPS track-and-trace units of the world. It is targeted for tracking a variety of very small objects, or even small animals e.g. small birds.

The TM-231 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, I/O-connectivity and a solar rechargeable integrated battery, offering long-term accurate location based positioning data, to be connected to any existing worldwide server application.

Key Features

- National telecom & worldwide satellite (GNSS) coverage
 - Quad-band GSM/GPRS
 - GPS
 - Glonass/GPS/Galileo (*)
- Minimum size, only 35 x 16.9 mm
- Ultra-lightweight, only 3.8 grams
- Nano SIM socket
- SIM on chip (*)
- Low power consumption, down to 3uA.
- OEM version
- Excellent GPS accuracy, internal antenna.
- 1 LED (Red) for user interaction.
- Onboard sensors:
 - Temperature sensor ($\pm 0.5^{\circ}\text{C}$)
 - 3D accelerometer up to 16g.
- Wide operating range: $-40^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Multiple watchdog levels for maximum stability.
- Solar cell power connector
- Versatile interfacing:
 - Digital and analog
 - Serial, 3V
- 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.
- 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

- Animal tracking
- Logistics, M2M
- Security and surveillance
- Remote control and diagnostics
- Anti-theft

Product Summary

Equipped with a state-of-the-art GPS receiver, the KCS TraceME TM-231 / R9M2 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 modules' minimum size of 35 x 16.9 mm and extremely small weight of only 3.8 grams enable tracking of very small animals e.g. small birds. It can be attached easily to various parts of the animal. Successful field trials by wildlife science experts have proven that the unit does not affect the natural behaviour of the animal.


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.

Specifications KCS TraceME TM-231

Data communication

GPRS Modem	Quectel M66 QUAD band, 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	
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 (2 W) at GSM850 and GSM900 • Class 1 (1 W) at DCS1800 and PCS1900 	
GPRS connectivity	<ul style="list-style-type: none"> • GPRS multi-slot class 1~12 (configurable) • GPRS mobile station class B 	

Navigation

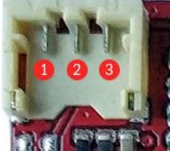
GPS Receiver	Quectel L70 GPS module, optional L76 GNSS (Glonass + GPS + Galileo) module		
Frequency	GPS L1 1575.42 MHz. C/A Code, 48 search channels Glonass L1 1598.0625 ~ 1605.375 C/A Code		
Sensitivity	Acquisition	-148 dBm (typical)	
	Reacquisition	-160 dBm (typical)	
	Tracking	-165 dBm (typical)	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

Electrical

Power supply	Internal Lithium primary cell		
	Optional external +5VDC ±10%		
Charging Current (LiPolymer)	Configurable; 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 uA, GPS/GPRS/sensors power down, 4 inputs, 1 timer active		

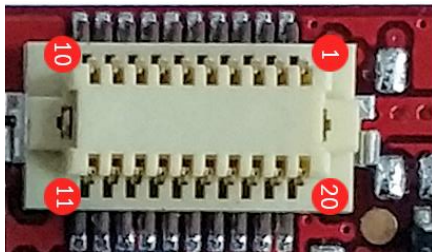
External Connections

Power connector



Pin	Description
1	3.4 - 4.5V Battery (+) connection
2	Ground
3	Solar cell 5V

20 pins extension header



Pin	Description	Description	Pin
1	3.4 - 4.5V Board Voltage (switched)	3.4 - 4.5V Board Voltage (direct battery connection, not switched)	20
2	3.4 - 4.5V Board Voltage (switched)	RXD 4 (2V8 level)	19
3	3V Board Voltage	TXD 4 (2V8 level)	18
4	SPI-SCK	reserved, do not connect	17
5	Ground	Ground	16
6	Ground	reserved, do not connect	15
7	reserved, do not connect	reserved, do not connect	14
8	reserved, do not connect	Ground	13
9	Ground	Ground	12
10	Serial programming, PDI-data Do not connect	Serial programming, PDI-clock Do not connect	11

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.

KCS is ISO 9001:2015 and ISO 14001:2015 certified.



KCS is a LoRa Alliance member since 2016.

Support

Visit our support page at: www.trace.me

Sales

Contact us by email: Trade@trace.me

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