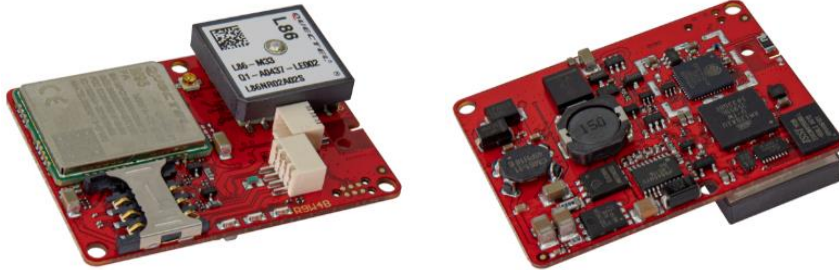


KCS TraceME TM-2100 / R9W4 GNSS/BLE/Wi-Fi module



The TM-2100 / R9W4 is a mid-range product line member of KCS' advanced TraceME track and trace modules. The TM-2100 is targeted for remotely tracking and tracing a variety of objects. It offers accurate location based position data to be connected to any existing worldwide server application.

Key Features

- National telecom & worldwide satellite (GNSS) coverage
 - Quad-band GSM/GPRS
 - UMTS/HSPA (*)
 - LTE Cat M1 / NB-1 / EGPRS (*)
 - LTE Cat M1 / NB-2 / EGPRS (*)
 - Glonass/GPS/Galileo
- Internal GNSS and Wi-Fi/BLE antenna
- 2G antenna via micro coax connector
- Wi-Fi (listen-mode only)
- Bluetooth Smart
- Micro SIM socket
- BASIC I/O, Serial, analog and digital interfaces
- Very small, only 48 x 36mm
- Lightweight: 18 grams for a fully equipped PCB
- 8 to 75VDC power supply
- Short Peak up to 85VDC
- Internal backup battery
- 3D accelerometer (up to 16g)
- 3 LED for user interaction.
- Operating temp. range: -20°C to +60°C
- Robust IP65 housing
- Multiple watchdog levels for maximum stability.
- Event based free configurable module to fit any job.
- Remote configurable to fit any job (both firmware and configuration files can be updated over the air).
- Supports integration into third party networks.

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

Applications

- Object protection and tracking
- Logistics, M2M
- Anti-theft

Product Summary

Equipped with a state-of-the-art GNSS receiver, the KCS TraceME TM-2100 / R9W4 module provides reliable and accurate navigational data.

The module's positioning coordinates are transmitted by GPRS/SMS, Wi-Fi and Bluetooth Smart (BLE) offering easy integration with existing wireless networks and specific custom mobile App's on smartphones and tablets. In areas without network coverage, position-data and events are stored in memory (up to 55,000 log items). As soon as communication is restored, all information can be transmitted.

Optional, the module can be extended with a 3G or LTE-M/NB-IoT modem, offering optimized connectivity and coverage for the next generation LTE-M and NB-IoT networks with seamless fall back to 2G networks.

With a minimal size of 48 x 36 mm, weight of only 18 grams, the module offers endless OEM integration possibilities.

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.

Ordering information

The KCS TraceME TM-2100 / R9W4 can be equipped with different optional technologies for traceability. It can be fully customized dependent of the application. Please contact sales for more details.

Enclosure (*)

Depending on the application, different types of enclosures might be required, which can be provided separately.


Backup battery





The module is equipped with a 3.7V/600mAh Lithium backup battery

Specifications KCS TraceME TM-2100


Data communication

GPRS Modem	Quectel M95 QUAD band, optional UG95(-A or -E) UMTS/HSPA Module, optional BG95 LTE Cat M1 / NB-2 Module all global certifications and R&TTE directives.	
Frequency bands	GSM/GPRS: 850/900/1800/1900 MHz UMTS: 800/850/900/1900/2100 MHz LTE: B1-5, 8, 12, 13,18, 19, 20, 25, 28	

RF 2.4GHz.	Espressif ESP32	
Frequency	2.45 GHz.	
Protocol	BLE 4.2 and custom 2.4 GHz. protocol	
Transmitting power	up to +12 dBm	
Sensitivity	-97 dBm (BLE)	

Wi-Fi	Espressif ESP32	
Protocol	IEEE 802.11b/g/n	
Functionality	Listen mode only	

Navigation

GPS Receiver	Quectel L86 GNSS (Glonass + GPS + Galileo),	
Frequency	GPS L1 Band Receiver (1575.42MHz)/ GLONASS L1 Band Receiver (1601.71MHz): Channel: 33 (Tracking)/ 99 (Acquisition) C/A Code SBAS: WAAS, EGNOS, MSAS, GAGAN	
Sensitivity	Acquisition	-148 dBm (typical)
	Reacquisition	-160 dBm (typical)
	Tracking	-165 dBm (typical)
Horizontal Position Accuracy	<2.5 m CEP	

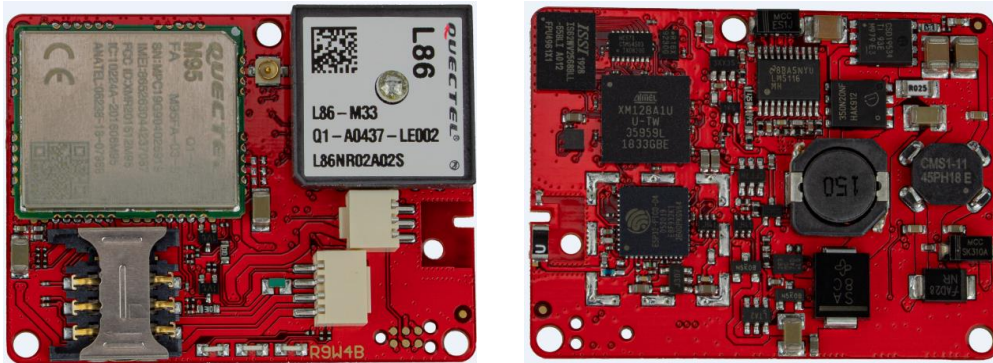
Operating Temperature Conditions

With rechargeable LiPo Cell	-20°C ... +60°C (discharging) 0°C ... +45°C (charging)
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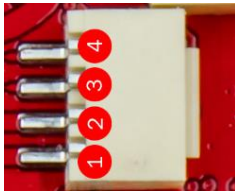
Electrical

Power supply	Maximum range: +8...+80VDC Spikes: 90Volt
Charging Current	Max 450mA. Observing 0...+45°C safety range for LiPolymer.
Power Consumption	60 µW standby (typical) (to be determined): GPS off, hot start possible. GSM off. Processor monitors timer + acceleration 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



Power and I/O-connector



Pin	Signal	Colour	Type	Description
1	VCC	Red	VCC	+8 to +80VDC charge input and power supply
2	GND	Black	GND	Ground for VCC and IO
3	Digital in 1	Green	I	Digital input #1, Rx1
4	Digital in 2	Blue	I	Digital input #2, Tx1

Accessories



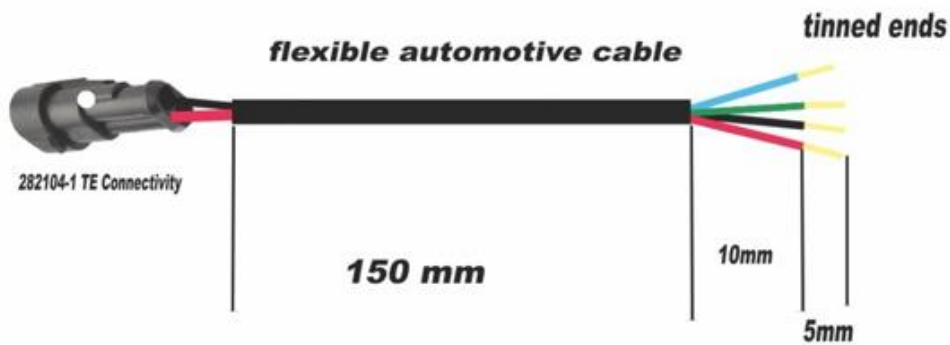
AMP-TE Connectivity: 282104-1

Connector Housing, SUPERSEAL 1.5 Series, Plug, 2 Ways, 6 mm

150mm cable, directly connected to pcb and connector. AWG24 // 0.205 mm²

stripped: 10 mm // tinned ends 5 mm

Note: Cable must always be with 4 wires (also when only 2 wires are used, red and black wire)

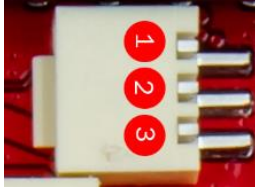


Z409BG P 00 A2 1000

HIGO Mini B connector 4 Ways, Blue

150mm cable, directly connected to pcb and connector. AWG24 // 0.205 mm²
stripped: 10 mm // tinned ends 5 mm (total 15 mm)

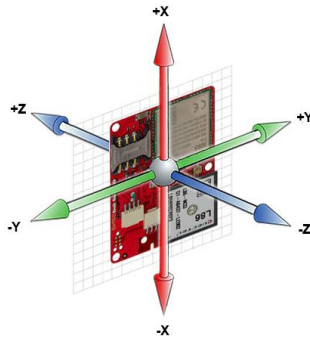
Backup battery connector



Pin	Description
1	Temperature sensor
2	Ground
3	3.4 - 4.5V Battery (+) connection

Onboard sensor

3D accelerometer



The module contains a 3D accelerometer (up to 16g), which can be used for a variety of custom specific (M2M) applications. Accelerometers are useful for measuring movement, speed, g-forces and vibration of the object. The accelerometer and advanced embedded firmware enables a very low-power battery solution.

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.



LoRa Alliance Member™

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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