



triorail

Next Generation GSM-R Module



TRM-5
TRM-5 ext

**GSM-R new defined to cope with challenging
neighborhood radio interferences**

Optional: Extended GSM-R

Datasheet

TRM-5 / TRM-5 ext

The TRM-5 and TRM-5 ext are the first modules of the 5th generation. This new generation surpasses the ETSI professional mobile improved standard by far. The TRM-5 ext supports the extended frequency band of GSM-R.

Technical Data

- Dimensions 35 x 32.5 x 3 mm (L x W x H)
- Weight 6 g
- Supply voltage 3.3 - 4.8 Vdc
- Current consumption
 - Power down: 50 μ A
 - Sleep mode: 3.0 mA (DRX=5)
 - Idle mode: 15 mA
 - Speech mode: 260 mA (average)
 - GPRS (class 10): 450 mA (average)
 - Peak: 3A
- Temperature range
 - Normal operation: -20°C to +70°C
 - Restricted operation: -40°C to -20°C
 - Storage: -40°C to +85°C
- TRM-5 advanced receiver performance
 - Average RX Blocking Level for EGSM900 interferer: > 17 dBm
 - Average IM3 Threshold for EGSM900 interferer: > 11 dBm



Interfaces

- Interface to external SIM card reader
- Board-to-board connector
- Digital and analog audio interface
- 2 serial interfaces
- Power supply
- Antenna connector and antenna solder pad

Target Applications

The TRM-5 and TRM-5 EGSM-R can be used for data and voice communication and applied for embedded solutions within GSM-R and EGSM-R environment.

System / Standards

- Frequency bands
 - GSM-R/ EGSM900/ GSM1800 (TRM-5)
 - EGSM-R/ EGSM900/ GSM1800 (TRM-5 ext)
- Professional Mobile Standard ETSI TS 102 933-1/2 V1.2.1
- ER-GSM Frequencies (TRM-5 ext only) ETSI TS 102 932-1/2 V1.1.1
- GSM Phase 2 and 2+
- Mobile station class B
- RF output power: Class 4 (2 W) for GSM-R/EGSM-R/EGSM900
Class 1 (1 W) for GSM1800
- Voice triple-rate codec for HR, FR, EFR
- Adaptive multi-rate (AMR) for non ASCII applications supported
- Hands-free, noise reduction and echo cancellation supported
- AT commands via serial interface
- SIM application toolkit

Data Services

- GPRS class 10 up to 85.6 kbps (DL) and 42.8 kbps (UL)
- PBCCH support
- Coding scheme CS 1-4
- CSD data transmission up to 14.4 kbps (Transparent and non transparent mode)
- Fax group 3, class 2
- TCP/IP stack access via AT commands
- Protocols: TCP, UDP, HTTP, FTP, SMTP, POP3
- SMS via GSM and GPRS (MO and MT, CB, text and PDU mode)

ASCII Features

- VGCS (Voice Group Call Service)
- VBS (Voice Broadcast Service)
- UUS1 (User-to-User Signaling type 1)
- eMLPP (enhanced Multi-Level Precedence and Preemption)

EIRENE Features

- FN supported (Functional Number)
- PFN supported (Presentation Functional Number)
- REC supported (Railway Emergency Call)