



# GSM-R modems



**TRM-5T**  
**TRM-5T ext**

**GSM-R new defined to cope with  
challenging radio interferer**

**Optional: Extended GSM-R**

**GSM-R technology for railways**

# TRM-5T / TRM-5T ext

The modems allow greater flexibility for immediate use and provide excellent receiver characteristics.



## Technical data

|                     |                         |
|---------------------|-------------------------|
| Dimensions          | 74 x 65 x 33 mm [LxWxH] |
| Weight              | 130 g                   |
| Supply voltage      | 8 – 30 Vdc              |
| Current consumption |                         |
| Standby             | 2 mA                    |
| Idle mode           | 40 mA                   |
| Speech mode         | 85 mA [average]         |
| GPRS (cl. 10)       | 150 mA [average]        |
| Peak:               | 4 A                     |
| Temperature range   |                         |
| Normal operation    | -20°C to +55°C          |

## Interfaces

|                        |                    |
|------------------------|--------------------|
| RS232 serial interface | 9-pin D-Sub        |
| Power supply           | 6-pin Western plug |
| Audio                  | 4-pin Western plug |
| Antenna connector      | Type FME 50Ω male  |
| Display                | Status LEDs        |
| Card reader            | Mini-SIM           |

## ASCI 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]         |

## Applications

The modems TRM-5T and TRM-5T ext can be applied easily and ad hoc for GSM-R and EGSM-R data and voice solutions within PC, notebook or other computing environment.

## System / Standards

|   |                         |
|---|-------------------------|
| Frequency bands                                   |                         |
| GSM-R/EGSM900/GSM1800                             | [TRM-5T]                |
| EGSM-R/EGSM900/GSM1800                            | [TRM-5T ext]            |
| RF output power                                   |                         |
| Class 4 [2 W] for GSM-R/EGSM-R/EGSM900            |                         |
| Class 1 [1 W] for GSM1800                         |                         |
| Professional Mobile Standard                      | ETSI TS 102 933 V 2.1.1 |
| ER-GSM Frequencies                                | [TRM-5T ext only]       |
| ETSI TS 102 932 V 1.1.1                           |                         |
| GSM Phase 2 and 2+                                |                         |
| Mobile station class B                            |                         |
| Audio   |                         |
| Voice triple-rate codec for HR, FR and EFR        |                         |
| AMR for non ASCII applications supported          |                         |
| Hands-free, noise reduction and echo cancellation |                         |

AT commands via serial interface

SIM application toolkit

## Data services

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

## Part no.

|            |      |
|------------|------|
| TRM-5T     | 1321 |
| TRM-5T ext | 1322 |