

Technical Information

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GSM Communication Unit GC127

GSM-based data communication

The GSM Communication Unit GC127 is the ideal solution for TCP/IP-based communication links between monitoring or RF measurement systems.

- ◆ Data rate 9600 bit/s
- ◆ V.34 serial data interface
- ◆ Optional router for TCP/IP links
- ◆ Transparent dial-up operation in wide area networks (WAN)
- ◆ Minimum interference with RF measurement equipment in vehicles permits simultaneous RF measurement and GSM transmission
- ◆ Ideal for mobile RF measurement and radio-monitoring systems
- ◆ Wide-range power supply 9 V to 30 V DC

Introduction

Monitoring systems today comprise not only fixed stations, but also transportable or mobile stations. When it comes to the remote control of these monitoring stations, a wireless data link is most often the only practicable solution.

The Rohde & Schwarz GSM Communication Unit GC127 provides unmatched capabilities for the remote connection of TCP/IP-based communication links within a WAN.

Overview

The GSM Communication Unit GC127 from Rohde & Schwarz is a universal communication unit based on GSM for data transfer or optional for audio transfer. In combination with a router it sets up a TCP/IP connection to control e.g. a mobile monitoring station remotely from an operator position in a center station using the GSM network.

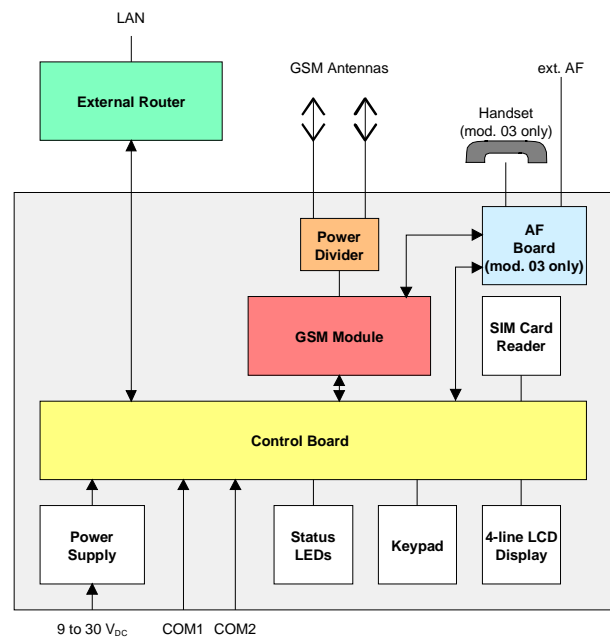


The GC127 comes as a 19" rackmount unit. Space has been reserved inside the unit to accommodate future optional extensions.

The unit comprises various interfaces, including two GSM antenna interfaces and a serial interface for an external router.

Description

The heart of the GC127 is a control board with a microcontroller running under Caldera DOS and the Siemens GSM Module M20. The GC127 moreover comprises an internal DC power supply, an alphanumeric display with keypad and a SIM card reader.



The SIM card is inserted into a separate slot. Operation with or without personal identification number (PIN) is possible.

An alphanumeric LCD is provided for displaying status information and - together with the keypad - for menu-supported manual setting of the device.

Due to the built-in DC power supply with an input voltage range of 9 V to 30 V DC, the GC127 can be integrated into vehicles with 12 V and 24 V DC supply.

As an additional feature, model 03 of the GC127 allows transmission of an audio signal alternatively to data transmission.

An incoming call from the GSM network is automatically accepted by the GC127 and the unit starts to transmit the audio signal applied to the input "ext. AF". If for example the line output of a monitoring receiver is connected to this input, this allows to listen to the audio signal of a receiver, using any telephone.

In addition the GC127 may be used similar to any standard GSM mobile phone. The first 10 telephone numbers stored on the SIM card can be selected in order to establish a mobile originated connection. Since the GC127 has no numeric keypad, it is not possible to dial an arbitrary number.

At the rear panel of the GC127 there are several interfaces:

- ◆ a serial interface for connecting a router
- ◆ two serial interfaces for service purposes
- ◆ a wide-range DC power supply input
- ◆ two connectors for GSM antennas



In mobile RF measurement systems the emission of GSM signals might interfere with the measurement equipment. Therefore two GSM antennas with horizontal polarization can be connected and installed inside or outside a vehicle. This minimizes the effect on DF or monitoring antennas and makes simultaneous RF measurement and GSM transmission possible.

Rohde & Schwarz offers three different types of GSM antennas for the GC127:

- ◆ dipole antenna
- ◆ round antenna for mounting onto a metal surface
- ◆ patch antenna for window mounting

The antennas must be ordered separately, since they have to be selected so as to suit the mechanical design of each individual system.

Operation

The GSM Communication Unit GC127 works like a standard modem for fixed networks. In combination with an external router it can set up a TCP/IP connection. The router is connected to the LAN of the monitoring system and to the router interface of the GC127.

Incoming calls will be received and the TCP/IP connection will be established in short time. Outgoing calls are possible as well. Thus, the GC127 makes for transparent dial-up operation in wide area networks (WAN).

Several **routers** have been tested and currently the Cisco 1720 router is recommended. If different routers are to be used, they must be tested and approved by Rohde & Schwarz to ensure compatibility with the GC127.

At the moment, 9600 bit/s are supported by GSM. The future might also bring 14.4 kbit/s, depending on the capabilities of the network operator.

One important precondition for data transfer is the availability of the **RLP protocol** in the GSM network. Only this protocol ensures sufficient error correction for secure transmission.

Specifications

Data transmission

Data rate	typ. 9600 bit/s
Direction	full duplex

Interfaces

FROM ROUTER	D-SUB jack, 9 pins (X5) V.34 - RS232 to router
ANT 1, ANT 2	N jack (X1 and X2) RF connection to GSM antennas
COM 1 (firmware update processor)	D-SUB plug, 9 pins (X3) standard serial interface
COM 2 (RS232 status)	D-SUB plug, 9 pins (X4) diagnostic input/output, standard serial interface, 19200 bit/s default
DC IN	round plug, 3 pins (X100) power supply input, 9 V to 30 V DC
ext. AF	3 pin Mini DIN input for ext. audio (only at mod. 03)
LCD display	alphanumeric, 4 lines of 20 characters each
Keypad	4 function keys + up/down keys
Receptacle for SIM card	Mini-SIM
Monitoring LEDs	for displaying status information of the RS232 interface to the router

General data

Rated temperature range	+5 °C to +40 °C
Limit temperature range	0 °C to +50 °C
Storage temperature range	-40 °C to +70 °C
Humidity	95% relative humidity at +40 °C
Sinusoidal vibration	5 Hz to 150 Hz
Random vibration	10 Hz to 500 Hz
Shock	40 g shock spectrum
EMC	meets EMC directive of EU (89/336/EEC) and German EMC law
Safety	according to EN60950 / VDE0805
Quality standard	developed and manufactured in compliance with ISO 9000
Power supply	9 V to 30 V DC
Dimensions (W x H x D)	19" rackmount, 2 HU – 427 mm x 89 mm x 448 mm 484 mm x 89 mm x 503 mm (overall)
Weight (basic version)	5.6 kg

Ordering Information

Basic version

GSM Communication Unit basic model without router and GSM antenna	GC127	3018.9996.02
GSM Communication Unit extended model including audio board and handset without router and GSM antenna	GC127	3018.9996.03

Extras

GSM antenna dipole antenna		on request
GSM antenna round antenna for mounting onto metal surface		on request
GSM antenna patch antenna for window mounting		on request
Router recommended: Cisco 1720		on request

