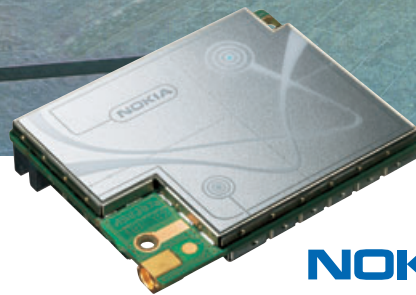


Nokia 12i GSM module

Let your machines talk



NOKIA
12i



Nokia 12i is a versatile and easy-to-use GSM module that provides excellent usability and various functions for controlling machines and applications from a distance. Integrated into devices or application systems, Nokia 12i creates new opportunities to manage resources more efficiently. It is the latest step towards true embedded wireless intelligence from the world leader in mobile solutions.

Versatile opportunities for developers

Java™ provides a standard, well-known programming environment and enables the implementation of the application logic inside the Nokia 12i. Besides providing easy and convenient usage, this makes application development substantially faster. Tools and instructions are available conveniently at the Forum Nokia website. Software developers are also able to implement additional small-scale communication protocols into Nokia 12i.

Comprehensive connectivity

Nokia 12i offers advanced GSM connectivity. It supports EDGE/GPRS and HSCSD with automated GSM connection establishment, and includes various integrated authentication

mechanisms. Special features such as remote parameter configuration and flexible audio interface further enhance the connectivity, thus providing even more reliable and versatile usage of Nokia 12i. With its comprehensive ability to redefine remote control, Nokia 12i is able to add true value to device manufacturers, IT managers, system integrators and customers.

Reliability first

The Nokia 12i GSM module is equipped to provide reliable remote connections. It offers application-level watchdogs, in-built self-check mechanisms and a reliable Virtual Machine (VM) for Java™. Nokia 12i also supports reliable in-built Internet protocols: TCP/IP for reliable data transfer; UDP/IP for audio and video streaming and HTTP for accessing Web pages. Common Object Request Broker Architecture (CORBA) is also supported for exchanging data.

To further enhance its operations, Nokia 12i utilizes AutoPIN, GSM encryption and security codes. The in-built authentication mechanism of Nokia 12i uses the Challenge Handshake Authentication Protocol (CHAP), which performs password authentication whenever a connection is established.

A wide range of features

Nokia 12i can be connected to an external Global Positioning System (GPS) device that supports the National Marine Electronics Association (NMEA) standard. Nokia 12i includes an NMEA parser that is able to parse the location data (such as location coordinates, altitude, date and time) from the output that it receives from the GPS device. This location data can be easily utilized in various Java™ applications.

External microcontrollers can use AT commands to communicate with Nokia 12i, and simple remote I/O applications can be easily controlled via text messages. Nokia 12i offers message personalization secure messaging and timing functionality for I/O applications controlled via text messages.

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Technical data

KEY FEATURES

- Java™ IMP 1.0 virtual machine
 - Additionally to IMP 1.0: Serial API, I/O API, Wireless messaging API, HTTP API, Socket API, Whatchdog API, ORB API
- 1 MB persistent memory
- 128 KB maximum Java IMlet Suite size
- 256 KB dynamic RAM size
- Dual band EGSM900/GSM1800MHz
- Wireless bearers
 - EDGE multislot class 6 (3+1, 2+2) and mobile station class B
 - GPRS multislot class 10 (4+1, 3+2) and mobile station class B
 - HSCSD multislot class 2
 - CSD
 - SMS, text/data messaging
- In-built internet protocols
 - TCP/IP, UDP/IP, HTTP, CORBA
- Reliability & access control
 - AutoPIN, GSM encryption, GSM security codes
 - PPP supporting CHAP authentication
- Digital and Analog audio
- Supports AMR voice codec
- Real Time Clock (RTC)
- GPS support (NMEA-183)
- Remote I/O control via SMS
- Standard AT commands

TECHNICAL DETAILS

- RF power (max.)
 - 2W (900 MHz) / 1W (1800 MHz)
- Power consumption (estimates)
 - Standby 12-29 mA
 - GPRS 310-690 mA
 - Peak 2 A
 - Idle 3 mA
- Size 36 mm x 45 mm x 9 mm (1,41 x 1,77 x 0,35 inc)
- Area 16.2 cm² (2,48 inc²)
- Weight 15 g (0,53 oz)
- Operating temperatures
 - Normal operating conditions +15...+35 °C
 - Extreme operating conditions -25...+55 °C
 - Storage conditions -40...+85 °C

- Operating humidity
 - Relative humidity range under normal operating conditions 20...75 % non-condensing
 - Relative humidity range allowed 5...95 % non-condensing
- Supply voltage nominal 3.8 V (min 3.6 V max 4.0 V)
- I/O voltage level 1.8 – 5.0 V user adjustable
- GSM Phase 2/2+ supplementary services
- ROHS free hardware

INTERFACES

- M2M System Interface
 - 60 PIN male board-to-board connector
 - SIM card interface (3V/1.8V)
 - Power supply
 - I/O voltage level selection
 - 3 serial ports (RS-232, AT commands, GPS, I/O, Java serial port)
 - Digital I/O's (17)
 - Analog Inputs (3)
 - Analog audio
 - Digital audio
 - Reset
- External antenna interface
 - MMCX type connector
 - Impedance 50Ω

TOOLS & SDK'S

- Nokia 12 Configurator SW
- Nokia 12 IMP 1.0 Simulator SW
- Nokia 12 SDK
- Nokia 12 Modem Driver

ENHANCEMENTS

- Test board (Hardware tool)
 - Used for testing Nokia 12i functionality and for setting the Nokia 12i configuration
 - Includes power supply, SIM card reader and audio connector for the Nokia HSU-3 handset
 - Provides standard RS-232 level D9 connectors for Nokia 12i serial ports
 - Input and output pins available through a pin header
 - Enables early phase application development

- An intelligent GSM module for wireless applications
- Java™ for easy and fast application development
- Increased data capacity through EDGE
- Integrated TCP/IP and UDP/IP stacks
- Easy integration for standard NMEA GPS modules
- Remote I/O control via SMS



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Contra / F.G.Lönnberg / 10/2004