




















Sony Ericsson

### Product Features:

-  **Compact Size**
-  **Dual Band**  
900+1800  
850+1900
-  **GSM/GPRS Class 8**
-  **2x UART Connectivity**  
Available through embedded applications
-  **Integrated TCP/IP Stack**
-  **Embedded Applications**
-  **RoHS Compliant**
-  **Fully Type Approved**

### Broad Spectrum:

-  **Emergency Services**
-  **Healthcare**
-  **Industrial Systems**
-  **Information Display**
-  **Metering & Monitoring**
-  **Power & Energy**
-  **Security & Surveillance**
-  **Traffic Control**
-  **Vending & Retail**

# GR47/GR48 GSM/GPRS Radio Device



Universal Developer's Kit

### Benefits

- Save time and space with a compact GSM/GPRS unit
- Wireless GPRS Internet access
- Industry standard reliable connectors
- Minimize total solution cost by embedding application directly onto GR47/GR48

The Sony Ericsson GR47/GR48 GSM/GPRS Radio Device is a highly advanced unit that provides an ideal solution for embedded wireless data and voice access. Optimized for M2M communications, the GR47/GR48 features an intrinsic TCP/IP stack that enables customers to make effective use of GPRS. The GR47/GR48 is configurable, to enable optimum usage of the input/output pins provided, making it easy to adapt to many wireless M2M applications.

The GR47/GR48 was designed to be integrated. With dimensions of 50 mm x 33 mm x 7.2 mm, the GR47/GR48 will fit into the smallest of spaces. Applications can include the monitoring and control of any electronically controlled system, industrial processes, electronic payment terminals and meter readings in areas such as gas, water, electricity and power networks. They also extend into service and maintenance in areas such as lifts, escalators, vending machines and point-of-sale equipment. The GR47/GR48 is truly a product that can be easily integrated with many applications or devices, rewarding our customers with the best results.

Sony Ericsson's Universal Developer's Kit can be used with the GR47/GR48 to simplify application development. The Kit provides everything required to design and develop innovative automotive applications and to bring them to market in record time.

# GR47/GR48 GSM/GPRS Radio Device

## Radio Features

- Dual Band GSM/GPRS Radio Device (EGSM 900/1800MHz [GR47] or GSM 850/1900MHz [GR48])
- Compliant with 3GPP GSM phase 2+ (GCF-CC v3.8.1 [GR47]/NAPRD v2.7.2 [GR48] standard) (small MS)
- Output power:
  - Class 4 (2W) @ 850/900MHz
  - Class 1 (1W) @ 1800/1900MHz
- Overall dimensions (excluding connectors):
  - 50 x 33 x 7.2mm
- Weight: 18.5g (including shielding)

## Environmental

- Power supply:
  - 3.4 – 4VDC
  - 250mA average current in voice communication (CS, average)
  - 350mA average current in data communication (GPRS 4+1)
  - <5mA average current in idle mode
- Temperature range:
  - -30°C to +75°C (operational functionality)
  - -40°C to +85°C (storage temperature)
  - -10°C to +55°C (full specification)

## Interfaces

- Single antenna interface (50Ω MMCX)
- Single 60 pin board-to-board connector including:
  - Power supply connection
  - 3/5V SIM interface with SIM detection
  - 2 x microphone inputs and 2 x speaker outputs
  - RS232 serial link (2.7V) supporting:
    - Control by AT commands (GSM 07.07 and 07.05) and Sony Ericsson proprietary commands
    - Serial baud rate from 1200 to 460,800 bits/s
  - 2 x other general purpose serial interfaces (in addition to serial link used for AT commands)
  - 1 x buzzer output
  - I<sup>2</sup>C support†

## Data I/Os

- Up to 9 x general purpose I/Os, 4 x digital outputs, 1 x digital input\*
- Up to 5 x analog to digital converter\*
- 1 x digital to analog converter
- Keypad supporting matrix of up to 5 x 4† (N.B. external driver transistors required)

## Data/GPRS Features

- CSD asynchronous – non transparent up to 9.6kbps
- HSCSD (2+1), up to 19.2kbps
- MS class B, GPRS class 8, up to 85.6kbps
  - P channel support
  - Coding schemes CS1-CS4
- GSM 07.10 multiplexing protocol

## Short Message Service (SMS) Features

- Text and PDU
- Point to point (MT/MO)
- Cell broadcast
- Concatenation – up to 6 SMS

## Voice Features

- Telephony
- Emergency calls
- GSM vocoder support:
  - Full Rate, Enhanced Full Rate and Half Rate (FR/EFR/HR)
- Dual Tone Multi Frequency function (DTMF)
- GR48 supports AMR

## Fax Features

- Fax group 3, class 1 & 2

## Embedded Applications

- Embedded script interpreter
- Extensive API-library
- Multiple UART access
- Embedded application script downloads over the air using GPRS
- Normal and controller mode
- Our M2mpower software facilitates the development of cost effective wireless M2M applications

## TCP/IP

- AT command access to TCP/IP stack
- Intrinsic functions enable access when using embedded applications
- Universal Datagram Protocol (UDP)
- Dedicated controller mode

## GSM Supplementary Services

- Call forwarding
- Call hold, waiting and multiparty
- Calling/called number identification
- Advice of charge
- USSD
- Alternate line service
- Customer service profile
- Preferred networks
- Operator selection
- Network registration
- Call barring
- Call transfer

## Additional Features

- ME + SIM phone book management – read/write/find, call screening, groups, personal rings, settings
- SIM application toolkit class 2
- Real time clock
- Alarm management
- Software upgradeable
- Audio control
- Fixed dialling number
- UCS2 16 bit data supported
- GPS Interoperability
- Voltage output reference

## Universal Developer's Kit

- Our Universal Developer's Kit is available for rapid evaluation of products and applications on a limited scale

† Available through embedded applications

\* See GR47/GR48 Technical Description for pin-out details

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