



# G24 Java Module

Delivering seamless mobility to the M2M world



## Hello Java.

It's never been easier to control your M2M environment.

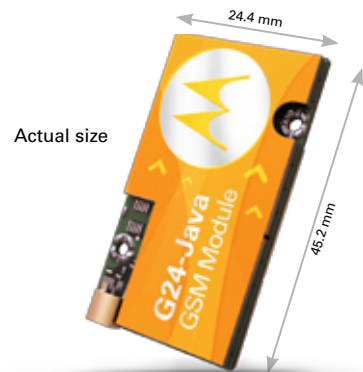


We get it. You need the flexibility to program in a language you understand. Now, you can have all the benefits of a Motorola M2M module on a Java based software platform. Seamless mobility that you control.

Introducing G24-J. Built for easy integration into various M2M projects, it can power many applications, tracking, automation and control units, point of sale, remote metering, security, vending machines, fleet management devices or any other M2M project that you can imagine. G24-J can deliver seamless communication and control, while we work with you to tailor the solution to your needs.

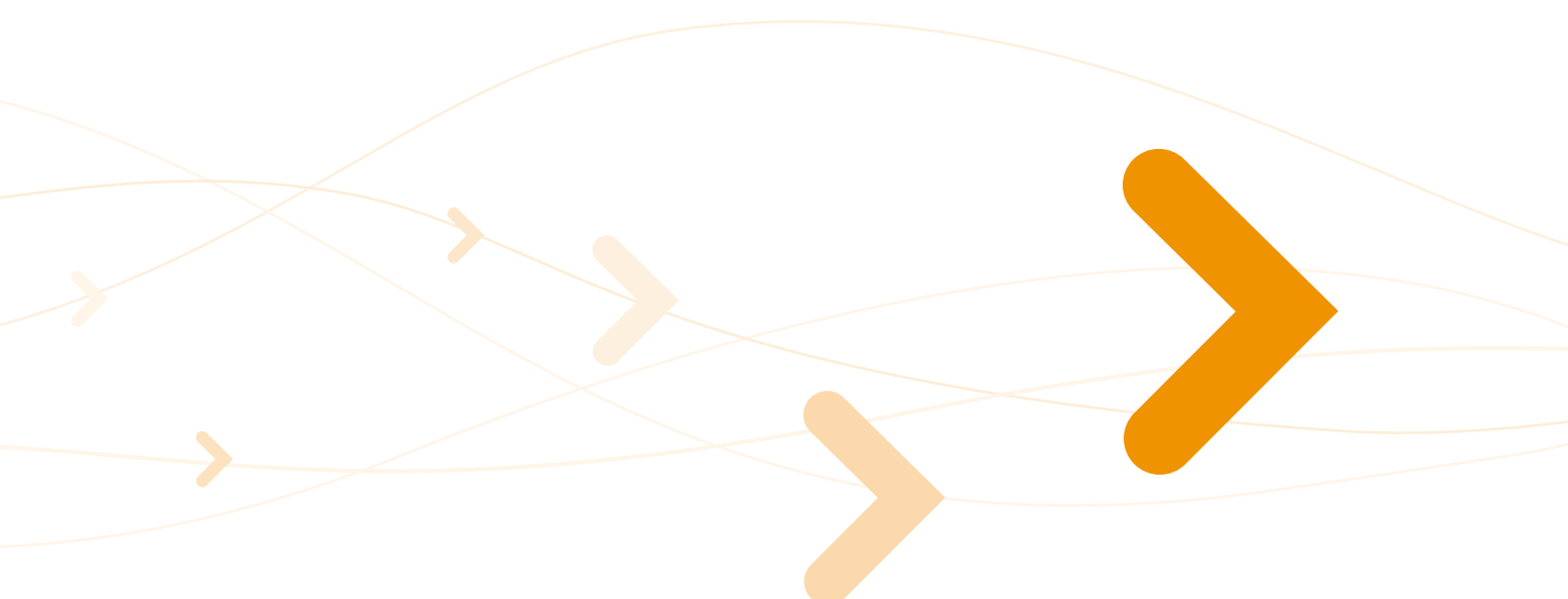
### It's great to be part of a family.

G24-J is the newest product in the time-tested G24 family. We've invested it with all we've learned. Our GSM/GPRS/EDGE module enables your host device to draw on Motorola's G24 CPU and memory. The G24-J comes in the same form factor as the G24 family, so you can easily design for it – then plug and play. With multiple protocols built in you have a rich software platform and a full range of interfaces - advantages that speed the development of a powerful, reliable M2M environment.



### It's not just the G24-J, it's Motorola.

So, you don't just buy a product – you buy a Motorola. Especially when you are building a system or a product that you want your clients to trust. With over 80 years of industry experience, substantial IP, infrastructure and a portfolio of pioneered technologies that have become standard, Motorola knows wireless. You know our products are here to stay. Whether it's with innovations and upgrades, new components or integration with new technologies, we are here.



### Less hassle means more money. For you.

The G24-J is designed to help you do your job faster and more easily. Here's how: first, we're providing extensive memory & CPU resources along with layers of security and internet protocols. Then, we ease you through certification by assisting you every step of a process in which we specialize. We help you save time and money and get to market earlier for faster ROI.

- G24-J CPU and memory that serves your host device
  - 10MB of ROM for Java Application Memory
  - 1.8 MB RAM
  - ARM7 processor
- Full control over 15 I/O's, 2 UARTS, 1 USB, I2C
- Sun compliant standards
- Wireless messaging capabilities (SMS, MMS)
- Integrated TCP/UDP/IP stack
- Already-included protocols such as HTTP, HTTPS, SSL and IBM MQTT for convenient information transfer
- Secure over-the-air MIDlet update for maintenance in the field
- Java partial mode:
  - Use the traditional AT command simultaneously with Java

### A new addition tailored to suit you.

You know what your customers need and you've designed a unique product with a feature set that satisfies those needs. Now you need to interface your choice of displays, keypads and memory to the G24-J. Perhaps you also wish to extend the I/O capabilities of the G24-J with additional communication interfaces. Added to this, it is likely you will have to deal with multiple supply voltages for these peripheral components. How do you do all this in the most flexible and cost-effective manner? Help is at hand. Motorola has teamed up with Xilinx®, the market leader in programmable logic, helping you to interface your G24-J module to the other parts of your unique system.

The revolutionary technology called the field programmable gate array (FPGA) can be programmed to perform specific functions using simple development tools. The flexibility of FPGAs, coupled with their ability to integrate large amounts of logic (including processors, DSP functions and transceivers) into a single device enable you to get your product to market fast with a low-risk, cost-effective solution that's tailored to suit your needs.



## A new game in town.

Create, innovate, go wild. G24-J comes with a full Developer Suite. As a member of the Motorola family, you will be supported through the Motorola dedicated Java Developer site. You will benefit from full access to the latest SDK edition, information and sample codes. Download our development tools and use our helpdesk to create your applications.

[www.motodev.com](http://www.motodev.com)

## Tools to design by.

Powered by Sun Java technology, the Moto2Moto wireless toolkit lets you develop your most creative ambitions. The toolkit gives you what you need to help you develop your MIDlet. When you've finished creating - run and debug your system software directly on your PC with the Sun Java emulator. You then put your program straight onto the G24-J saving you time in the development process.

G24-J's software developers' kit lets you play with any IDE including NetBeans or Eclipse freeware, making it exceptionally easy to use. Run the MIDlet on the target - and then you can breakpoint with the IDE, benefiting from an on-device debug.

We know you need to take note of what you've done. So, the G24-J allows you to log your work and route the logs to each of the 3 serial ports or to the platform data logger while you are working. Enable or disable feature related logs as you need.

## Hello Java.

### Now we speak your language.

We've taken our market-proven M2M engine and given you access to develop your applications. Use it as a canvas for your designs. At Motorola, we are dedicated to creating a world of seamless mobility. We look forward to the new worlds you create.



## Java Technical Specifications

### Supported J2ME Standards

- JSR 139 CLDC 1.1
- JSR 118 MIDP 2.0
  - Internet Connections, including Listen Socket
  - Secure Internet Connections (SSL, HTTPS)
  - Serial Connections
  - Record Management Database
  - Security
  - GUI
- JSR 120 Wireless Messaging 1.1
  - SMS
  - CBS
- JSR 205 Wireless Messaging 2.0
  - MMS
  - e-mail
- JSR 135 Mobile Media 1.1
- JSR 75 file system
- JSR 75 PIM
  - Phonebook
  - Contacts Database
- JSR 205 WMA 2.0
- JSR 179 Location

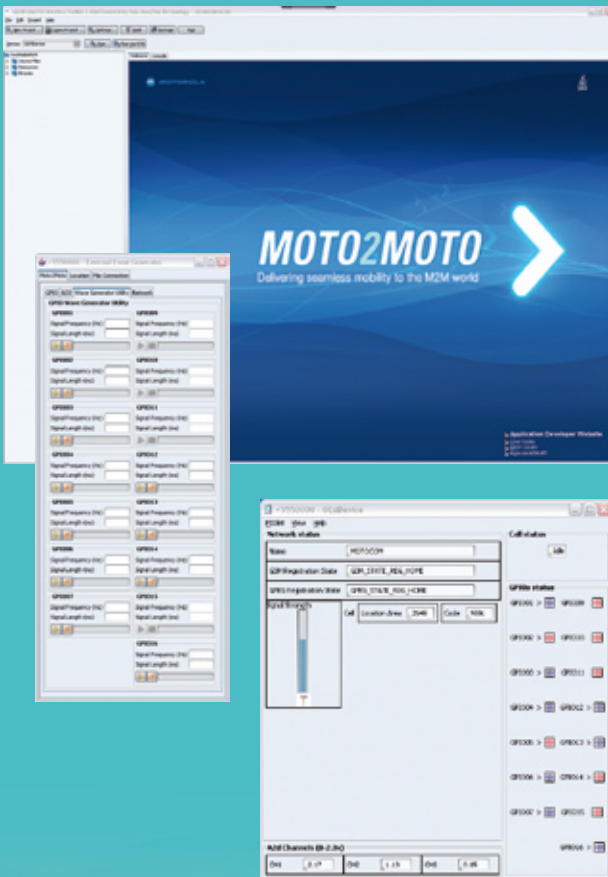
### Java M2M Extended APIs

- MIDlet OTA update
- Watchdog
- Network Time&Date
- CSD voice and data call
- Network and SIM card operations
  - Status query and indications
  - Configurations
  - USSD
- Internet/GPRS parameters configuration

- Crash recovery
  - Report to predefined addresses
  - OTA Recovery & configurations
- OTA initial setup – fresh from factory or when MIDlet is in recovery mode
- I2C
- IPD - IP Director, local socket over serial connectivity

### Java M2M HW Interface Capabilities

- Parallel serial connections, 2 UARTs, 1 USB and I2C
- A2D
  - Measurements
  - Threshold and periodical notifications
- Diverse GPIO feature
  - 15 GPIO lines available
  - Average output latency – 1ms
- True interrupt (4 lines):
  - Average latency – 10ms
- Pulse counters (2 lines):
  - Max counting frequency 2 KHZ
- Temperature reading
- Battery level
- Antenna presence
- Power
  - Sleep mode
  - RF Enable/Disable
  - Reset, shutdown
  - Wake-up Alarm



Java™

Now in the  
coffee  
machine,  
not just in the  
coffee.

## G24 Product Specifications



### Product Features

#### Supported Bands

- Quad Band
- 850/900/1800/1900 MHz

#### Physical

- Size: 24.4 x 45.2 x 6.0 mm (6mm stacking height)
- Mounting: two 2.4 mm holes
- Weight: 10.1 gram

#### Environmental

- Operating temperature: -30°C to +85°C
- Storage temperature: -40°C to +85°C

### Performance

#### Operating Voltage

- Voltage: 3.3 - 4.2V

#### Current Consumption

- < 3.5mA @DRX9 (Sleep mode)

#### TX Power

- 850/ 900 MHz – Class 4 (2 Watt)
- 1800/1900 MHz – Class 1 (1Watt)

#### Typical RX sensitivity

- -106dBm (4dB margin on top of spec)

### Interfaces

#### Connectors

- Single 70 pin board to board
- RF MMCX

#### SIM Card

- 3.0V
- STK 3.1

#### Connectivity

- USB 2.0 full speed
- UART: BR from 300 bps to 460 Kbps Auto BR
- Two physical UARTs for AT commands & Data
- I2C
- MUX 27010 Support

### Regulatory and Approvals

- FCC, IC
- ANATEL (Brazil)
- COFETEL (Mexico)
- CMII (China)
- PTCRB
- R&TTE/CE
- GCF
- QS9000 manufacturing
- RoHS/WEEE/CCC

### Data Features GPRS

- Multi-slot class 10 (4 Down; 2 Up; 5 Total)
- Max BR Downlink 85.6 Kbps
- Class B GSM 07.10 multiplexing protocol
- Coding Scheme CS1-CS4
- Embedded TCP/IP and UDP/IP protocol stack
- Embedded FTP
- Embedded SMTP/POP3 - e-mail
- SSL - Secure Connection

### EDGE - Model Dependent

- Multi-slot class 10 (4 Down; 2 Up; 5 Total)
- Max BR Downlink 236.8 Kbps (Over RS232)
- Coding Scheme MCS1-MCS9

### CSD

- Max BR 14.4 Kbps

### SMS

- MO / MT Text and PDU modes
- Cell broadcast

### FAX Class 1

### Voice Features

- Telephony
- Digital audio
- Differential analog audio lines
- Vocoders EFR/HR/FR/AMR
- DTMF support

- Audio control: echo suppression; noise suppression; side tone; gain control

### GSM Supplementary Service

- USSD phase II
- Call forwarding
- Call hold; waiting; multiparty
- Call diverting
- Missed call indicator
- AOC
- Call barring

### Character Set

- UTF8
- UCS2
- GSM
- IRA
- HEX

### Control / Status Indications

- 8 GPIO's
- 3x A2D general purpose converters
- GSM/GPRS coverage
- Wake up in/out
- Antenna presence detect
- Temperature sensor
- Voltage sensor
- Jamming Detection

### AT Command Set

- GSM 07.05
- GSM 07.07
- GSM 07.10
- Motorola proprietary AT commands

### Accessories

- Firmware data loader over serial connection
- OTA - Firmware upgrade over the air
- Data logger
- Developer Kit
- SDK
- Display Supported - via Xilinx® FPGA





[www.motorola.com/m2m](http://www.motorola.com/m2m)

For more information contact us at:  
**[M2M.Sales@motorola.com](mailto:M2M.Sales@motorola.com)**



Availability of some features depends on the software revision.  
Motorola reserves the right to change products, accessories and services  
without prior notice. MOTOROLA and the Stylized M Logo are registered  
in the U.S. Patent and Trademark Office. All other product or service names  
are the property of their respective owners. ©Motorola, Inc 2009