Connect with IoT

ROHM IoT Solutions

Creating novel devices and applications.
Semiconductor solutions that expand the possibilities of IoT.
Supporting manufacturing and contributing to society through innovative technologies.

Start using in just 10 minutes
Connect with IoT

IoT Initiatives

Achieving IoT, in which a wide range of devices are connected to the Internet, requires sensors for detecting environmental and physical conditions, MCUs for processing sensor information, and networks for transmitting and sharing the data. The ROHM Group has been committed to proposing solutions and developing products for constructing sensor networks.

For example, proprietary sensor technologies are used to achieve long-term sensing operation in machine health monitoring and social infrastructure applications. Providing the capability of monitoring and detecting abnormal sensor information will make it possible to prevent breakdowns and accidents before they occur. We also believe that sensor networks will lead to the realization of new systems and applications.

ROHM will continue to leverage its experience, expertise, and technologies to contribute to safer, more comfortable living through IoT.
Typically, symptoms arise before a machine breaks down. In these cases, ROHM believes failures and breakdowns can be prevented through constant monitoring for abnormalities in order to prevent sudden machine stoppages.

**Algorithm-Based Analysis**

- Sensor Signal: Acceleration
- Analysis: Strength, Correlation, Frequency

**Monitoring**

- Signal Tower Monitor
- Temperature Sensor
- Flowmeter
- Vibration Sensor
- Temperature Sensor
- Liquid Level Gauge
- Operating Switch
When introducing IoT, the first step is to acquire sensor data from various devices and use a network to collect this data. However, many challenges exist in collecting, processing, and transmitting sensor information. ROHM offers a variety of sensors that make it easy to achieve IoT along with a development kit designed to acquire sensor data utilizing optimized communication methods. The development kit is designed to implement IoT and can be set up in as little as 10 minutes.

**Optimized for a Wide Range of Fields**

The SensorShield-EVK-001 evaluation kit is capable of long-distance communication with low power consumption, making it suitable for applications requiring transmission over wide spaces such as factories and the outdoors.

**IoT Solutions**

**SensorShield-EVK-001 Evaluation Kit**

Arduino-compatible sensor shield makes it easy to configure a sensor environment

- Accelerometer
- Gyroscope
- Geomagnetic
- Pressure Sensor
- 10-Axis Motion Module
- Color Sensor
- Optical Pulse Wave Sensor
- Temperature Sensor
- Ambient Light + Proximity Sensor
- Hall IC

Measurement in Arduino environment

**BP35C2 USB Dongle**

USB dongle with Wi-SUN compatible firmware

**Application Examples:** IT agriculture, smart factories

**Communication Distance**

- up to 500m

**Control Using a PC**

ROHM offers modules that integrate a TCP/IP protocol stack with authentication and encryption (supplicant and WPS), allowing for easy connection with Wi-Fi compatible devices.

**IoT Solutions**

**BP359C Evaluation Board**

FCC (North America) and Japan Radio Law certified

Immediately start sensor evaluation and development wireless LAN modules

- Built-in RS-232C I/O
- USB-UART Conversion
- Supports USB Bus Power

**Application Examples:** Sensor control from a PC or tablet
The Cloud

EnOcean’s ultra-low-power communication device features a wire-free, batteryless design that eliminates the need for regular maintenance (i.e. battery replacement) and allows mounting virtually anywhere. The fact that no wiring is required (for power) makes it suitable for use in hotels, institutions, and places with important (cultural) assets.

The Cloud

Batteryless EnOcean Kit

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The Cloud

IoT Solutions

Application Examples:
- HEMS, BEMS

These ultra-low-power modules integrate peripheral components required for operation, such as antennas, and have received radio certification not only in Japan, but in the US (FCC), Canada (IC), and the EU (CE) as well.

IoT Solutions

Application Examples: Sensor control using a smartphone

Sensors can be used for
- HEMS, BEMS

Control Using a Smartphone

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IoT Solutions

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ROHM's sensor shield is an evaluation kit that allows users to combine and operate 10 high-performance sensors. The sensor expansion board supports open MCU platforms such as Arduino Uno and mbed®. A dedicated site offers a variety of materials for download, including manuals and development software, enabling initial set development of modules with sensing and wireless capability.

Sensor Kit Lineup

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerometer</td>
<td>KX022-1020</td>
</tr>
<tr>
<td>Pressure Sensor</td>
<td>BM1383AGLV</td>
</tr>
<tr>
<td>Geomagnetic</td>
<td>BM1422GMV</td>
</tr>
<tr>
<td>Gyroscope</td>
<td>KXG03-EVK-001</td>
</tr>
<tr>
<td>10-Axis Motion Module</td>
<td>IMU-10DOF-EVK-001</td>
</tr>
</tbody>
</table>

Sensor Medal

ROHM's Sensor Medal is a wireless sensor evaluation kit that integrates multiple ROHM Group motion sensors. It can instantly detect the wearer’s activity or the location/movement of equipment. The energy efficient design is ideal for IoT devices, while the built-in low-power MCU makes it easy to evaluate sensor data by downloading a dedicated application for smartphones and tablets.

Board Layout

JAPAN

EU / India

North America

Supporting Materials

Documents: Circuit diagrams, manuals
Software: Evaluation app
Compatible with iOS and Android™ 4.3 or later (Min. screen size: 7in.)
Verified device: 2013 Nexus 7

Applications

Application and sensor loggers that chronologically display the measurements of each installed sensor are available (software compatible with Android™). It is possible to achieve a variety of applications by combining the measurements of each sensor.

Web Page

All required documents and software can be downloaded from ROHM’s website.

URL (Japanese Only)
http://www.rohm.co.jp/web/japan/sensor-medal-support

*Android™ is a registered trademark of Google Inc.

Application Examples

- Movement/fall detection (acceleration, barometric pressure, gyro)
- Metal detection (geomagnetic field)
- Altitude measurement (barometric pressure)
- Activity monitoring (acceleration, barometric pressure)
- eCompass (geomagnetic field, acceleration)
- Muscular strength measurement (acceleration)

Web Page

All information is available on the below websites.

URL

Online Distributors

(Single units available for purchase)

Mouser Electronics
URL: http://www.mouser.com/

Digi-Key Electronics
URL: http://www.digikey.com/

RS Components
URL: http://www.rs-components.com/
In addition to this ROHM IoT Solutions pamphlet, Short-Range Wireless Communication LSIs/Modules and Sensor Catalogs are offered.

Sensor Catalog

Contains detailed information on ROHM Group sensor products. The broad lineup ranges from environmental sensors that can quickly detect ambient conditions to motion sensors capable of accurately detecting the orientation and movement of objects.

Short-Range Wireless Communication LSIs/Modules

Includes product lineups and detailed descriptions. ROHM offers a wide variety of short-range wireless communication ICs and modules covering the Sub-GHz to 2.4GHz bands, allowing users to select the ideal product/protocol (i.e. IEEE802.15.4, specified low power wireless, Bluetooth®) based on set requirements.