July 13, 2020

Murata Manufacturing Co., Ltd.

Murata's Bluetooth® module with VitaNet Suite enables cloud-centric IoT device
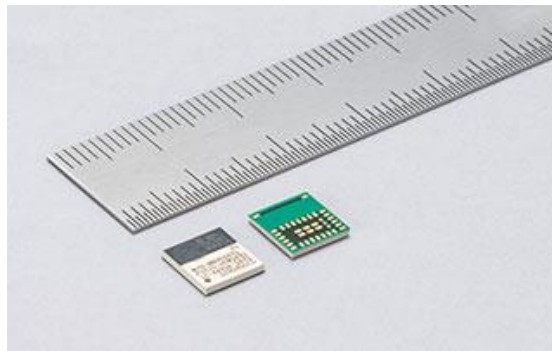
Murata Manufacturing Co., Ltd. (Head Office: Nagaokakyo City, Kyoto Prefecture, Japan; hereinafter "Murata") has completed compatibility verification of the MCU[*1] embedded Bluetooth® Module (MBN52832) (hereinafter "the Murata Module") with VitaNet Suite, the secure IoT platform that VitaNet, Inc. (Head Office: California, USA; hereinafter "VitaNet") will begin offering in July 2020.

*1. Microcontroller Unit: A single computer chip designed for embedded applications.

The industrial IoT, also known as Industry 4.0, has been grappling with the challenge of dramatically improving productivity. In the post COVID-19 world more than ever, cloud-based remote and secure control over industrial IoT without the need for a highly trained workforce has become a must. However, the need for manual work in order to securely operate the industrial IoT has been a persistent problem. VitaNet Suite provides a breakthrough in this regard by allowing IP network cloud control over non-IP Bluetooth® IoT devices. In addition to drawing on Murata's module design expertise to achieve miniaturization, the Murata Module is now compliant with VitaNet Suite. Incorporating the Murata Module and VitaNet Suite into Bluetooth® Low Energy IoT devices, we have achieved the world's first[*3] automated identification and authentication (for automated device pairing), thereby enabling secure and remote IoT device control including remote alive monitoring[*2] and automated data collection. Attaching a QR code that contains device information on pumps, motors, and other industrial components eliminates the need for the LCD[*4] panel and operation buttons previously required for Bluetooth® operation and management. The Murata Module makes the conversion of industrial components into secure IoT devices more cost effective than ever.

*2. Monitoring whether a computer or system is operating normally or not.

*3. As of July 12, 2020.

*4. Liquid crystal display.

VitaNet Suite is a platform service consisting of middleware that runs on each gateway and IoT device together with protocol conversion support from the cloud. VitaNet's patented technology converts protocols between IP networks and non-IP Bluetooth®, making possible the connection of hundreds of IoT devices with secure two-way encrypted communication via a single gateway for the first time ever. There is no theoretical limit to the number of IoT devices that a gateway can accommodate. VitaNet-equipped IoT devices do not emit any radio signals during standby, which ensures privacy and prevents congestion in the 2.4GHz band. In addition, VitaNet equipped IoT devices support smartphone applications as before with improved UX design. VitaNet Suite SDK[5] is compliant with the Bluetooth® standards and utilizes Bluetooth® Low Energy (LE) Security Mode 1 Level 4[6] which is difficult to verify and tends to increase development time and cost. The SDK features an easy-to-understand API that follows the programming flow to make it easy to develop applications for the product and the gateway.

*5. A software development kit used to implement functions in application development.

*6. Perform authentication and pairing with the LE Secure Connection to start AES-128 encrypted communication.

Murata and VitaNet will continue to engage in R&D in the interests of better meeting market needs and will contribute to the future of safe and secure IoT networks.

Main Features

1. Integrating Bluetooth® security with automated secure device authentication

The IP network controls the secure authentication of both IoT devices and the gateway, using VitaNet's software authentication key for authentication and pairing. This is the first time in the industry that security and pairing have been automated and integrated with AES-128[7] packet encryption supported by the Bluetooth® standard.

*7. Advanced Encryption Standard: An encryption method adopted as a standard in the United States and widely used in the rest of the world.

2. Enabling IT networks to securely manage and control Bluetooth® IoT devices

Incorporating the Murata Module allows encrypted two-way communication with IoT devices to be performed from a cloud server, enabling secure remote control and management of large numbers of IoT devices, including alive monitoring, automatic data collection, and other operational tasks.

### 3. Saving IoT device space through miniaturization

Murata has applied its expertise in communication module design and manufacturing to further miniaturize the Murata Module, thereby contributing to the design of high-density electronic circuits and the increasing compactness of IoT devices.

When used together with VitaNet Suite, it is possible to identify IoT device IDs with a QR code and authenticate IoT devices with the VitaNet software authentication key. This eliminates the need to install an LCD panel or operation buttons as a user interface, allowing the Murata Module to be installed in pumps and motors that conventionally do not have interfaces for manual operation.

2. Main specifications

Product name	MBN52832
Size	7.4mm x 7.0mm x 0.9mm (length x width x height)
Communication standard	Bluetooth® Low Energy (LE)
Antenna	Built-in antenna
Nordic IC Chip	nRF52832
Firmware OTA update	Yes

Murata Module QR code authentication process
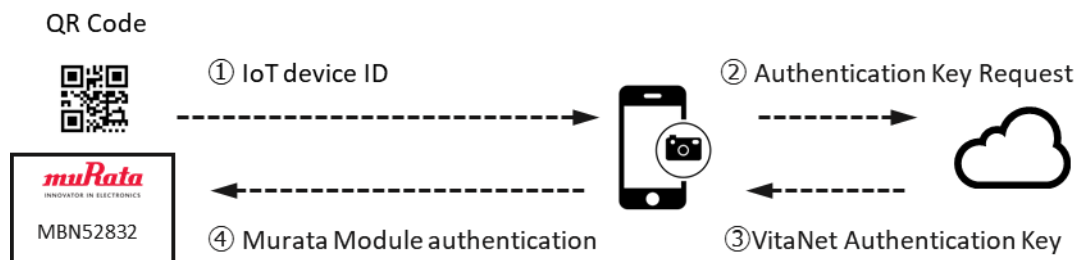
The VitaNet authentication key request is needed only for the first time. Cached VitaNet authentication key information can be used on subsequent occasions.

Product ecosystem
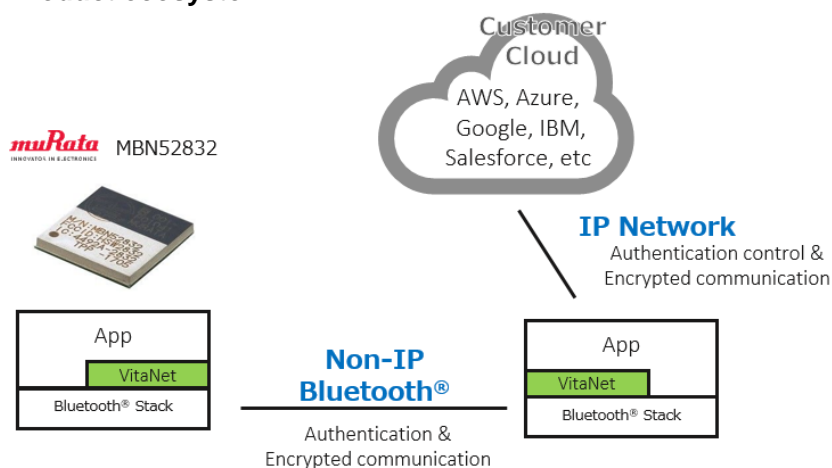
About the products

[Converting industrial components to IoT by QR code Powered by VitaNet - Making IoT safe and easy](#)

[The MCU embedded Bluetooth® Module (MBN52832)](#)

Related websites

About VitaNet Suite

https://www.vita.net/product/