MIERUZZO SERIES MANUAL

INSTRUCTION MANUAL

M16-303

WIRELESS
Coordinator (802.15.4)

Thank you for purchasing our product, M16-303.
Please confirm that you have the correct device by checking the product label.
Please read this instruction manual carefully before using this device to ensure correct usage.
Please keep this instruction manual for future reference.

⚠ ATTENTION!

- Do not use this device near machines that emit strong electromagnetic fields or objects that store static electricity.
- Do not drop or subject this device to strong impact.
- Do not use or store this device where it will be exposed to water or any wet conditions.
- Do not attempt to disassemble or modify this device.
- Do not operate with a power source other than the one recommended in this manual or listed on the product labels.

ATTENTION! Please note that misuse of this device may lead to injury to the user or damage to the device. Please observe all safety precautions and warnings in this instruction manual.

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⚠ ATTENTION!

- Do not install another wireless device or locate another radio device or antenna within 20cm of this transmitter.
- Co-location of antenna of this transmitter with any other antenna or transmitter is not allowed. Keep the antenna of this device at least 20cm (8 in.) away from another radio device or its antenna.
- Keep separation distance of at least 20cm (8 in.) between the antenna of this device and nearby person during device operation.
- This device is not intended for portable application.

■ PRODUCT INTRODUCTION

The M16-303 Wireless Coordinator provides wireless connectivity to DK-5000 series (sold separately). When used together with a Wireless End-Device (M16-302, M16-602), this device can provide wireless data communication between a DK-5000 device and a host computer up to 25 meters away.

This device communicates with the host computer using the USB 2.0 protocol.

※ Important!

This device requires Wireless Mieruzzo Software to operate. The software runs on Windows 7, 8, 8.1 or 10 OS.

The software enables user to remotely download, save and delete the data saved on the memory of the device attached to the transmitter unit. The software also enables real-time data display of the displayed data on the attached device.

■ INSTALLATION/DEPLOYMENT GUIDELINES

It is important to consider the installation environment when deploying the Wireless Coordinator. The device has to be tested at different possible locations to get the installation which gives the best signal. If it is possible, maintain line-of-sight between the End-Device and the M16-303 Wireless Coordinator. The following guidelines may also be followed if obstructions cannot be avoided.

- Do not put the device near metal objects or walls. Metal objects can highly interfere the 2.4GHz signal.
- Elevate the devices higher off the floors. At least 1m elevation is advised. USB extension cable may be used to elevate the Coordinator.
- Do not install the device near a grounded surface.
- For multiple end-devices installation, locate the coordinator at the center of the installation area for better coverage.

Communication range may be reduced when obstructed. Wireless signal are either reflected or absorbed when obstructed by some material, resulting to poor signal quality. It is best to put the devices on direct line-of-sight (LOS) of the coordinator, for better performance.

Obstruction Material	Wood	Glass	Plaster Wall	Concrete	Metal
Effect on Signal	Low	Low	Medium	High	Very High

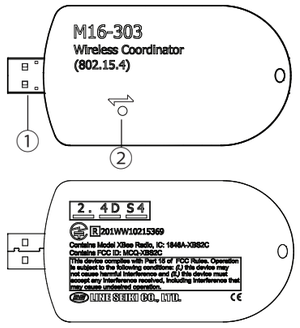
■ POWER SUPPLY

The Coordinator is designed to be powered by the computer USB port. Multiple Coordinator devices connected in a single hub may cause insufficient supply to the Coordinator. Please check the USB port's capacity.

Upon initial connection to the computer, the Coordinator will perform the start-up routine, with the data LED (⇆) blinking *amber* for 5 - 7 seconds. After the start-up routine, the Coordinator enters active mode and is available for connection to software.

(See OPERATION MODES for details.)

■ LABELS



① USB Port

② USB Data Indicator

⚠ Conformance Warnings

Contains Model XBee S2C Radio, IC: 1846A-XBS2C
Contains FCC ID: MCQ-XBS2C

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1.) This device may not cause harmful interference and

(2.) This device must accept any interference received, including interference that may cause undesired operation.

To satisfy FCC RF Exposure requirements for mobile transmitting devices, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance are not recommended.

These wireless devices are compliant with radio law in Japan, the United States, Canada and EU. They cannot be used in countries and regions other than Japan, the United States, Canada and EU member countries.
The violation of laws and regulations against wireless devices may result in punishment in each country and region.

■ OPERATION MODES

This device has two operation modes: Active Mode and Wireless Mode.

● Active Mode

The Coordinator enters **Active Mode** after it is successfully enumerated by the PC. (See the DEVICE CONFIGURATION section for details in connecting the coordinator to PC.)

This mode enables the Coordinator to be detected by the communication software.

● Wireless Mode

In **Wireless Mode**, the PC should be able to send commands to the Coordinator device thru the Wireless Mieruzzo Software.

The Coordinator will search for the Wireless End-devices as commanded by the software. Both the End-device and Coordinator must have the same network configuration so that wireless communication can be established. (See the DEVICE CONFIGURATION section for details.)

After the Coordinator is paired with an End-device and a successful communication to the software is established, the wireless indicator will turn *green*. An *amber* wireless indicator indicates that the Coordinator is not yet paired with any End-device.

When connected, the software will be able to request for the data and other information of the connected DK-5000 device using the Wireless End-device. Configuring the DK-5000 device is also possible thru this mode. Refer to the user manual of the Wireless Mieruzzo Basic Software for complete instructions on how to use the software.

■ INDICATOR

⇆ DATA: RED, GREEN, AMBER

During device initialization or after power ON, the data LED blinks *amber* light for 5~7 seconds.

INDICATOR	TYPE OF EVENT - CONFIGURATION MODE
OFF	Device not connected to PC
Amber Light Blinking	Device enumeration
Amber Light ON	Device enumeration successful
Green Light ON	Device connected to Wireless Mieruzzo Basic Software
Green Light Blinking	Saving configuration to the device
INDICATOR	TYPE OF EVENT - WIRELESS MODE
Amber Light Blinking	Searching for End-devices; Pairing with End-device
Amber Light ON	Idle, waiting for connection to Wireless Mieruzzo Basic Software
Green Light ON	Device connected to Wireless Mieruzzo Basic Software

■ COORDINATOR OPERATION

The Coordinator device (M16-303) allows communication of up to 14 End-devices. The Coordinator acts as a central node which talks to each of the end-devices currently connected into its network. Only one end-device can be accessed by the coordinator at a time.

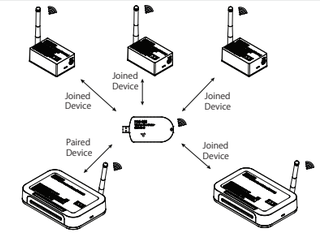
The M16-303 device must be located at least 1m above the ground and without any obstruction for better performance. If necessary, a 1-meter USB extension cable may be used to meet these requirements. Further details on the device installation requirements can be viewed on the Wireless Mieruzzo Basic Software Manual.

● Connecting to the Wireless Mieruzzo Basic Software

Connect the coordinator to an available USB port in the computer.

Connecting multiple devices connected in a single USB hub may cause insufficient supply to the coordinator. Please check the capacity of the computer's USB port.
The Wireless Mieruzzo Basic Software Manual has the detailed instructions on using the software to establish communication between the Coordinator and End-Device.

■ WIRELESS SYSTEM OPERATION



System requires the same:
- Channel
- PAN ID

The Coordinator starts a network using the **Channel** and **PAN_ID** that was set during configuration. All end-devices which has the same Channel and PAN_ID as the coordinator will be able to join the network.

Joined devices are those end-device which has established connection with the coordinator but is not communicating with software. Only the *paired* device can communicate with software. Only one *paired* device is allowed to communicate at a time.

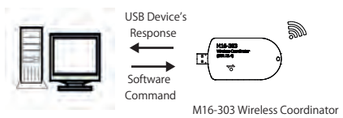
Multiple networks can be setup using more than one coordinator. Each network should have a unique PAN_ID to eliminate conflicts on communication between each device in the network.

■ SYSTEM CONFIGURATION

The Mieruzzo Wireless data transfer system is composed of a Wireless End-Device (M16-302 or M16-602), a M16-303 Wireless Coordinator, a DK-5000 USB device and a host PC. The Coordinator creates the network to provide communication link between the end-device and the host PC. The wireless connection should be established thru the Wireless Mieruzzo Basic Software installed in the host PC. Once the end-device is paired to the coordinator, the communication software can start sending commands to the coordinator device which forwards the command to the paired end-device. The end-device receives the command from over-the-air (OTA) which then forwards it to the connected DK-5000 device. When the DK-5000 device replies to the command, the end-device receives this reply and forwards the reply to the coordinator. The coordinator sends the received response to the software for processing.

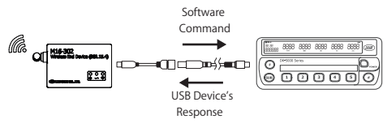
Please refer to M16-302 instruction manual on how to operate the end-device.

The Wireless Mieruzzo Basic Software enables user to remotely download, save and delete the data saved on the memory of the connected device. The software also enables real-time data display of the displayed data on the attached device.



PC with Wireless Mieruzzo Software

Over-the-Air Transmission



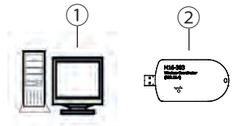
Wireless End-Device connected to a DK-5000 device

The wireless system operates at 2.4 GHz, employing IEEE 802.15.4 protocol. Up to 14 Wireless End-Device (M16-302 or M16-602) can be connected to the Coordinator device but only one end-device will be paired with the communication software at a certain time. Selection of end-device to be accessed can be done thru the software.

■ DEVICE CONFIGURATION

● Connection to PC

Connect the device to an available USB port in the computer.
Refer to the illustration below for instruction on connecting M16-303 to a computer.



① PC ② M16-303 Wireless Coordinator

● Set-up and Configuration

The device must be configured before placing into operation for the first time. Once the device has been configured, there is no need to perform configuration again unless there is a need to change the initial setup. The Wireless Mieruzzo Basic Software is needed to perform this procedure. Please install the software before proceeding to the configuration.

The following parameters will be set in the device during configuration.

Channel:
Sets the RF channel used to communicate with the receiver.
Any value from 11 to 26.

Network ID:
Sets the ID of the network. The end-device and coordinator device must have matching network ID in order for the devices to see each other.
Any value from 1 to FFFFFFFF.

ID Name:
Sets the name of the device within the network. ID Name must be unique for each device to be connected on the same network.
Maximum of 20 characters, cannot be started with space.

※ Important!

This device requires Wireless Mieruzzo Basic Software to perform the configuration.
Please install the software and perform the configuration of the device.
Please refer to the software instruction manual of the Mieruzzo USB device (DK-5000) for the detailed instructions in performing the configuration.
This device should be configured at first-time usage in order for the device to work properly.
This device should be power cycled after configuration to reflect the parameter changes.

■ SPECIFICATIONS

Model	M16-303
Power Source	USB 5V (100mA)
DK-5000 Connection	USB 2.0 (USB Micro-B)
Wireless Communication	IEEE 802.15.4
Wireless Range	Up to 30m Line-of-Sight (LOS)
Operating Frequency	ISM 2.4 - 2.5 GHz, Direct Sequence Spread Spectrum (DSSS)
Operating Channel	11 to 26
Operating Humidity	35 ~ 85% RH (Non-condensing)
Operating Temperature	0 ~ 50°C (Non-freezing)
Storage Temperature	-10 ~ 60°C (Non-freezing)
Dimension	97(L) x 48(W) x 16(H) mm
Weight	Approx. 35g
Accessories	Instruction Manual x 1
Compliance	CE, RoHS, FCC, IC, ARIB

For more details, please visit our website at **http://www.lineseiki.com**

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