EVK-W262U
Evaluation kit for ODIN-W2 series
User Guide

Abstract
This document describes how to set up the EVK-W262U evaluation kit to evaluate u-blox ODIN-W2 series with UART communication.
### Document Information

<table>
<thead>
<tr>
<th>Title</th>
<th>EVK-W262U</th>
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<tbody>
<tr>
<td>Subtitle</td>
<td>Evaluation kit for ODIN-W2 series</td>
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This document applies to the following products:

<table>
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<tr>
<th>Product name</th>
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<th>Firmware version</th>
<th>PCN reference</th>
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<td>EVK-W262U</td>
<td>EVK-W262U-00</td>
<td>1.0.0</td>
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1 Introduction

This document describes how to set up the u-blox EVK-W262U evaluation kit to evaluate the ODIN-W2 series modules with UART communication.

1.1 Overview

The ODIN-W2 is a compact and powerful stand-alone multiradio module, designed for Internet-of-Things gateway applications. The module includes embedded Bluetooth® stack, Wi-Fi driver, IP stack, and an application for wireless data transfer, all configurable using AT commands. The wireless support includes dual-mode Bluetooth v4.0 (BR/EDR and low energy) and dual-band Wi-Fi (2.4 and 5 GHz bands).

The EVK-W262U evaluation kit enables easy evaluation of the u-blox ODIN-W2 series stand-alone IoT gateway modules. All configurations are handled over a single USB interface that provides both power supply and high-speed data transfer thus eliminating the need for an external power supply. A powerful software tool is also included so evaluation can start immediately. The u-blox EVK-W262U evaluation kit is compact and mobile and does not require any cables or extra antennas. Its user friendly interface makes it ideally suited for use in laboratories and vehicles alike.

![Overview of EVK-W262U evaluation kit](image)

1.1.1 Features

- ODIN-W262 multiradio module with internal antenna
- USB 2.0 connector for virtual COM port interface and power
- 5 LED indicators for status and activity
- Reset button for quick rebooting
- Factory restore button for easy recovery from non-standard settings

1.1.2 System requirements

- PC with USB interface
- Operating system: Windows Vista, 7, 8, and 10
- Internet connection for downloading the FTDI driver
1.1.3 Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Interfaces</td>
<td>1 USB 2.0</td>
</tr>
<tr>
<td>Dimensions</td>
<td>55.5 x 17.0 mm</td>
</tr>
<tr>
<td>Power Supply</td>
<td>5 V through USB</td>
</tr>
<tr>
<td>Normal Operating Conditions</td>
<td>-40 °C to +65 °C</td>
</tr>
</tbody>
</table>

Table 1: EVK-W262U specifications

1.2 Block diagram

The EVK-W262U evaluation kit uses only one USB interface to communicate with the evaluation software and for power supply. A DC/DC step down voltage converter (U1) supplies the ODIN module with a 3.3 V system voltage. To transform the USB data signals to a common UART interface used by the module, a UART converter chip (U2) is used. To help in the evaluation process, a reset and system restore button is featured as well as five LEDs to indicate system status.

1.3 Connectors

A USB 2.0 compatible serial port is featured for data communication and power supply.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>UART over USB</td>
<td>USB Type A connector, power source and interface for sending AT commands</td>
<td>J2</td>
</tr>
</tbody>
</table>

Table 2: Available connectors in EVK-W262U

1.4 LEDs

The evaluation board has five LEDs to indicate status of system and communication link. The LEDs LD1 to LD4 are located on the side of the PCB and indicate when the UART signals TXD, RXD, RTS and CTS are active as shown in Table 3. The LD5 is an RGB LED located in the middle of the board that changes color according to the current system mode.
1.5 System modes

The ODIN-W2 series modules can enter different modes of operation. The EVK includes an RGB LED to indicate the current mode. See *ODIN-W2 AT Commands manual* [1] for more information about the modes.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Status</th>
<th>RGB LED color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data mode</td>
<td>IDLE</td>
<td>Green</td>
</tr>
<tr>
<td>AT mode</td>
<td>IDLE</td>
<td>Orange</td>
</tr>
<tr>
<td>Data or AT mode</td>
<td>CONNECTING1</td>
<td>Purple</td>
</tr>
<tr>
<td>Data or AT mode</td>
<td>CONNECTED1</td>
<td>Blue</td>
</tr>
</tbody>
</table>

Table 4: Different operational modes

1.6 Buttons

The evaluation board has two push-buttons located at the edge of the PCB as shown in Figure 1. Pressing the Reset button will force a reset of the host CPU on the ODIN module. The Restore button will, in combination with a reset, restore the settings of the serial interface and the current AT-configuration to its factory default as described in the *Restoring default factory settings* section.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset host</td>
<td>Forced reset of the host CPU</td>
<td>SW1</td>
</tr>
<tr>
<td>Restore factory settings</td>
<td>Restores all the factory settings of the ODIN-W262 module / External input for multiple use, see the ODIN-W2 AT Commands manual [1] for detailed use.</td>
<td>SW2</td>
</tr>
</tbody>
</table>

Table 5: Available push-buttons on the evaluation board

Be careful not to damage the electrical components through electrostatic discharge.

---

[1] The LED will flash in this state indicating data activity
[2] Restore function is enabled during startup. After starting up, SW2 is used as External connect.
2 Getting started

Internet connection is required for downloading the FTDI driver in the EVK-W262U evaluation kit.

2.1 Software installation

The EVK-W262U can be used together with the s-center software tool. The s-center software tool can be downloaded from u-blox website. Download and run the executable. The software components will be installed on your system and placed under the “u-blox” folder in the “Start -> All Programs” menu.

2.2 Hardware installation

Connecting the unit to a USB powered hub is not recommended. The unit may draw more power than the USB hub can supply, thus resulting in a power failure in all connected USB devices.

1. Connect the unit to a PC running Microsoft Windows through an empty USB port.
2. If connected to the internet, the operating system will install the correct drivers automatically. The drivers will only need to be installed the first time you connect the unit to a new computer.
3. A COM port will automatically be assigned to the unit by Windows. On Windows 7, open the Control Panel, click Hardware and Sound and click Device Manager to view the assigned COM ports.

2.3 Basic operations using s-center

2.3.1 Connect to the ODIN-W2

Start the s-center evaluation software and assigned COM port of the unit using the default settings as mentioned in Table 6. Refer to the ODIN-W2 User Guide [4] for more information.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Virtual COM port</td>
<td>115200 baud, 8 data bits, no parity, 1 stop bit, hardware flow control</td>
</tr>
</tbody>
</table>

Table 6: Default settings for the virtual COM port

Figure 3: COM port settings in s-center
2.3.2 Using the s-center

Once you establish connection with the COM port, the main screen will be shown. The Basic Connection tab enables you to perform some simple tasks like finding other devices and setting up connections.

The s-center will start by trying to set the module in AT-Mode. If successful, it will read out the basic information like Bluetooth, Wi-Fi address, and firmware version.

Figure 4: Main screen in s-center
2.3.3 Get and set configuration

The Get All and Set All are used to get and set a complete configuration to the ODIN-W2.

Nothing will be stored in flash until the Store button is clicked. That will store the current configuration into the flash of the ODIN-W2 and will be used when the module starts up after a reset. Some commands like +UWSCA stores the settings without the need of using the Store button.

Use the Factory Button if you need a complete reset (of the configuration).

Figure 5: Main screen in s-center
2.3.4 Basic Bluetooth operation

Finding other units
Clicking the Bluetooth Inquiry initiates a search for other Bluetooth devices and the results are shown after 5 seconds.

Select device
If the s-center finds some Bluetooth devices, it will be shown in the list as shown in Figure 7.

Figure 6: Bluetooth inquiry in s-center

Figure 7: Response to Bluetooth inquiry in s-center
Connect to device
Select the device you want to connect to and press Connect Peer to establish a connection. If the other device is also an ODIN-W2, it accepts and establishes the connection. If there are other devices, some actions must be taken.

![Figure 8: Connecting to peer in s-center](image)

Send data to other device
The easiest way is to enter data mode by clicking the Data Mode button or type ATO1. All the data that is typed in the console window is sent to the other device.

Notice: If ODIN-W2 is in AT-Mode it is unable to send or receive any data.

![Figure 9: Switching to data mode in s-center](image)
2.3.5 Basic Wi-Fi operation

Finding other units
Clicking the Wi-Fi Scan initiates a search for other Wi-Fi Access Points and the results are shown after about 5 seconds.

![Figure 10: Scanning for Wi-Fi Networks in s-center](image)

Connect to device
Select the Wi-Fi Access Point, enter the SSID, and if needed, enter the Password, and then press Activate Wi-Fi. Wait for the network interface to go up, and make sure an IP Address has been received. Then click Connect Peer to connect a TCP or UDP connection.

![Figure 11: Activating Wi-Fi, TCP connection, and checking network status in s-center](image)

2.4 Further information
2.5 Restoring default factory settings

While evaluating, if the current serial interface settings are lost or the interface becomes unresponsive, it might be necessary to perform a factory settings restore. Following the steps mentioned below will result in a complete restore of the settings of the serial interface and the current AT-configuration to factory defaults.

1. Press and hold the Restore button (SW2).
2. Press once on the Reset button (SW1).
3. The system mode LED will turn green. Continue holding the Restore button for around 5 seconds until the system mode LED turns orange.
4. Release the Restore button. The serial settings are now restored and the evaluation board is ready for use.

![Figure 12: Position of the reset and restore buttons on the evaluation board](image-url)
# Appendix

## A List of acronyms

<table>
<thead>
<tr>
<th>Abbreviation / Term</th>
<th>Explanation / Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>Bluetooth</td>
</tr>
<tr>
<td>CAN</td>
<td>Controller Area Network</td>
</tr>
<tr>
<td>DHCP</td>
<td>Dynamic Host Configuration Protocol</td>
</tr>
<tr>
<td>FW</td>
<td>Firmware</td>
</tr>
<tr>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>GPIO</td>
<td>General Purpose Input Output</td>
</tr>
<tr>
<td>H</td>
<td>High</td>
</tr>
<tr>
<td>I</td>
<td>Input (means that this is an input port of the module)</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td>L</td>
<td>Low</td>
</tr>
<tr>
<td>LPO</td>
<td>Low Power Oscillator</td>
</tr>
<tr>
<td>MIMO</td>
<td>Multi-Input Multi-Output</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>O</td>
<td>Output (means that this is an output port of the module)</td>
</tr>
<tr>
<td>PCN / IN</td>
<td>Product Change Notification / Information Note</td>
</tr>
<tr>
<td>PD</td>
<td>Pull-Down</td>
</tr>
<tr>
<td>PU</td>
<td>Pull-Up</td>
</tr>
<tr>
<td>RXD</td>
<td>Receive Data</td>
</tr>
<tr>
<td>TCP</td>
<td>Transmission Control Protocol</td>
</tr>
<tr>
<td>TXD</td>
<td>Transmit Data</td>
</tr>
<tr>
<td>UART</td>
<td>Universal Asynchronous Receiver-Transmitter serial interface</td>
</tr>
<tr>
<td>UDP</td>
<td>User Datagram Protocol</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
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</table>

Table 7: Explanation of abbreviations used
Related documents


Revision history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Name</th>
<th>Comments</th>
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<tr>
<td>R01</td>
<td>31-July-2015</td>
<td>ajoh</td>
<td>Initial release.</td>
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<tr>
<td>R02</td>
<td>21-Sep-2015</td>
<td>fbro</td>
<td>Update to Advance Information status.</td>
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<tr>
<td>R03</td>
<td>19-Mar-2016</td>
<td>cmag</td>
<td>Updated document status to Early Production Information. Added Basic Wi-Fi operation (section 2.3.5). Minor changes in section 1.1.</td>
</tr>
<tr>
<td>R04</td>
<td>26-May-2017</td>
<td>kgom</td>
<td>Minor updates.</td>
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Contact
For complete contact information visit us at www.u-blox.com.

u-blox Offices

North, Central and South America
u-blox America, Inc.
Phone: +1 703 483 3180
E-mail: info_us@u-blox.com
Regional Office West Coast:
Phone: +1 408 573 3640
E-mail: info_us@u-blox.com
Technical Support:
Phone: +1 703 483 3185
E-mail: support_us@u-blox.com

u-blox Offices

Asia, Australia, Pacific
u-blox Singapore Pte. Ltd.
Phone: +65 6734 3811
E-mail: info_ap@u-blox.com
Support: support_ap@u-blox.com
Regional Office Australia:
Phone: +61 2 8448 2016
E-mail: info_anz@u-blox.com
Support: support_anz@u-blox.com
Regional Office China (Beijing):
Phone: +86 10 68 133 545
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com
Regional Office China (Chongqing):
Phone: +86 23 6815 1588
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com
Regional Office China (Shanghai):
Phone: +86 21 6090 4832
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com
Regional Office China (Shenzhen):
Phone: +86 755 8627 1083
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com
Regional Office India:
Phone: +91 80 4050 9200
E-mail: info_in@u-blox.com
Support: support_in@u-blox.com
Regional Office Japan (Osaka):
Phone: +81 6 6941 3660
E-mail: info_jp@u-blox.com
Support: support_jp@u-blox.com
Regional Office Japan (Tokyo):
Phone: +81 3 5775 3850
E-mail: info_jp@u-blox.com
Support: support_jp@u-blox.com
Regional Office Korea:
Phone: +82 2 542 0861
E-mail: info_kr@u-blox.com
Support: support_kr@u-blox.com
Regional Office Taiwan:
Phone: +886 2 2657 1090
E-mail: info_tw@u-blox.com
Support: support_tw@u-blox.com

Headquarters
Europe, Middle East, Africa
u-blox AG
Phone: +41 44 722 74 44
E-mail: info@u-blox.com
Support: support@u-blox.com

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