Kit Content

Figure 1: IOTZTB-DK006 Kit Contents

Part# (fig.1)	Device type	#A ZigBee Control Bridge	#B Generic switch node	#C Light /sensor node
1	K32W M10 module with embedded NFC tag and ZigBee printed antenna Or K32W041A / K32W041AM T10 module	☑	☑	☑
2	DK6 carrier board with NFC antenna	☑	☑	☑
3	NFC reader board	☑		
4	Generic switch expansion board		☑	
5	Light/Sensor expansion board			☑
6	USB 'A to mini B' cable	☑	☑	☑

Demonstration Quick Start

This section contains the basic information necessary to start using the K32W-DK006 kit with the pre-loaded ZigBee Smart Home Demonstration. In this demonstration, a ZigBee 3.0 network set up is completed using a PC. Commissioning is performed via NFC. You will then be able to control the light directly from the switch in the network after binding.

SETUP THE CONTROL BRIDGE

1) **If not already done as described in page 1, please follow steps below:**

   a. The FTDI driver must be installed on you PC hard drive from http://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip

   b. The ZGWUI.exe file must be copied on you PC hard drive. It is available from JN-AN-1247-ZigBee-3-0-ControlBridge package (folder AN1247\Tools\TestGUI\Source\bin\Debug).

2) **Power the ZigBee Control Bridge** (part #A) on FTDI USB connector (see figure 2) to your PC using the provided USB cable (part #6).

   The green light blinks on the PN7150 NFC control shield.
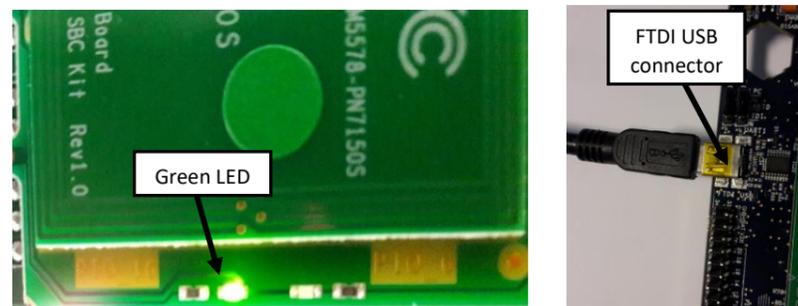
Figure 2: Active control bridge-Green LED and FTDI USB port

3) On your PC, **open** the Zigbee Gateway User interface (ZGWUI) by double clicking on the executable file **ZGWUI.exe.**

   The following window appears:
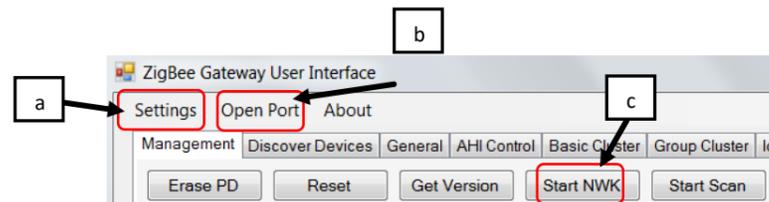
a. Click on the '**Settings**' menu: select the COM port connected to the control bridge and click on 'OK'.
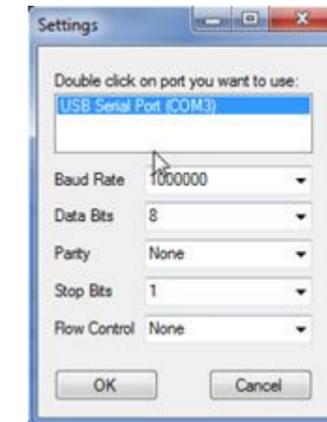
b. Click on '**Open Port**' menu (button state changes to 'Close port')

c. Click on '**Start NWK**', you can see at the bottom left of the ZGWUI window the raw data and bottom right the received message log:
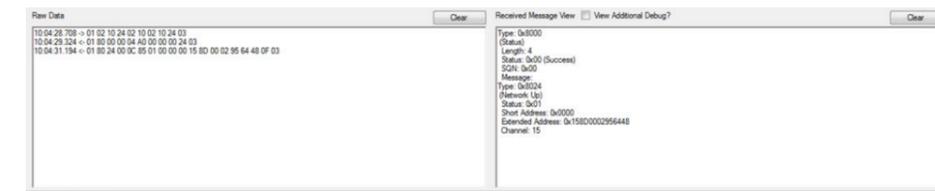
COMMISSION THE NETWORK VIA NFC

In this section, you will use the light node (carrier board fitted with the lighting/sensor expansion board) and the switch node (carrier board fitted with the generic switch expansion board).

1) **Connect the light node** (part #C) to the PC USB power supply (PC or USB charger - not provided).

Caution: From here onwards you will use the light node. The white LEDs on the expansion board are very bright at maximum intensity. Do not look into them directly for an extended period of time.

2) **Tap** the NFC antenna of the **light node** on the NFC antenna of the control bridge, as shown in the Figure 3.
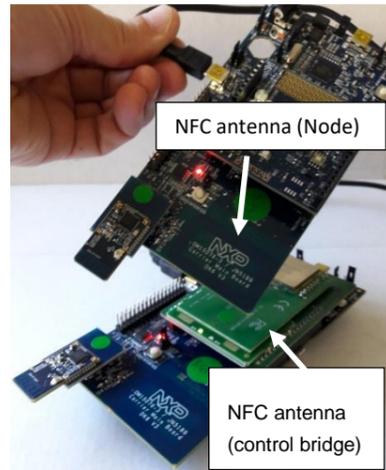
Figure 3: NFC Tap to Commission Node

a. The green LED on the NFC reader shield blinks more quickly during commissioning and then comes back to its initial state

b. The node is then commissioned

Caution: Beware of short circuits by placing the light node battery connectors on the NFC shield

3) To **commission the generic switch node** (part #B)**, repeat step 1 and 2** with the generic switch node

4) The 2 nodes are present on '**Discover Devices**' tab of the ZGWUI**:**

Click on 'Discover devices' button, there are 2 short addresses listed standing for the 2 nodes. Below is an example:

In case none or only one short address is present but not 2, redo the commissioning nodes from step 2.

CONTROLLING THE LIGHT FROM THE GENERIC SWITCH NODE

1) **Bind** the generic switch node to the light node as follows:

   a. **Light node**: Press and release the USER INTERFACE button as shown on figure 4. The 3 white LEDs will start to flash.

   b. **Generic switch node**:

     i. Press and release SW1,

     ii. Hold down the USER INTERFACE button:

       1. Once LED D1 starts flashing on the generic switch node, press and release the SW2 button.

       2. Release the USER INTERFACE button only when the light node LEDs stay ON.

The nodes are now bound.
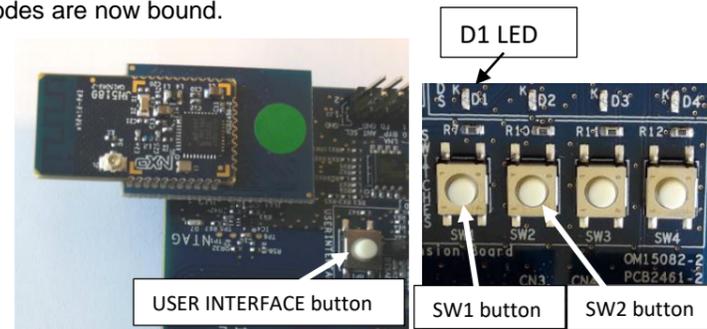
Figure 4: USER INTERFACE button on DK6 board and SW1, SW2 buttons on generic switch expansion board

2) **Experiment** with the buttons SW1 to SW4 to control the white LEDs on the Light node, as follows:

Switch	Action	Dimmable Light reaction
SW1	ON	White LEDs D1, D2 and D3 will go ON
SW2	OFF	White LEDs D1, D2 and D3 will go OFF
SW3	Dim up	White LEDs D1, D2 and D3 will light up
SW4	Dim down	White LEDs D1, D2 and D3 will be dimmed

Note: If you need to factory-reset a node, hold down the USER INTERFACE button, then press and release the RESET button and then release USER INTERFACE.

IOTZTB-DK006 Development Kit Getting Started

Welcome to the IOTZTB-DK006 Development Kit which allows you to start developing ZigBee and BLE wireless networks based on the NXP K32W family of microcontrollers. This document describes the contents of the kit and provides 'Quick Start' instructions for setting up and running the pre-loaded ZigBee Smart Home Demonstration.

Check the Kit Content

Check the content of the development kit box using the photograph and components list provided on page 2 of this document.

Collaterals Package Download

Please contact your local NXP account to get access to the package.

To run this demonstration:

a. The FTDI virtual COM port driver must be installed on you PC hard drive from http://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip

b. The ZGWUI.exe file must be copied on you PC hard drive. It is available from JN-AN-1247-ZigBee-3-0-ControlBridge package (folder AN1247\Tools\TestGUI\Source\bin\Debug).

Set Up and Run the Demonstration

You can now use the kit to set up and run the pre-loaded ZigBee Smart Home Demonstration, as described in the rest of this document.

For more complete set-up instructions and information about the kit, refer to the *DK006 Development Kit User Guide (JN-UG-3138)*, available in the downloaded package.

The pre-loaded demonstration software is based on a ZigBee 3.0 application.