Power Options

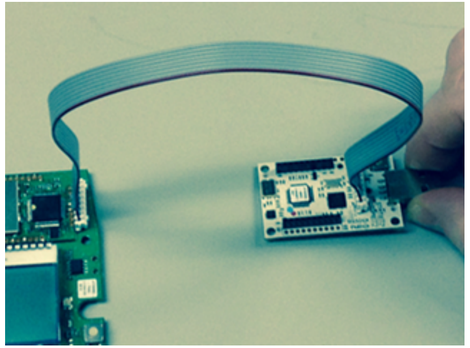
Refer to the photo under **Board Components** section for exact connection locations and orientation of the device.

1. **USB Powered:** To power up the device out of the box, connect it via **USB Power Connector** to a USB power source such as a computer, USB charger or similar device. This connection's sole purpose is to power the device. (When using this option, do not use the power switch which is for battery/DC power.)
2. **Manually Wired:** The device can be wired for user-supplied 5 -12 VDC power (either battery or other source). There are two through holes on the lower left corner of the device next to the **Left** button. See **External Power** under **Board Components** section. Below are details for the power connections and switch settings :
   - **Square pad:** ground
   - **Round pad:** positive voltage
   - **Voltage range:** 5 - 12 VDC
   - **Power Switch** (for battery/DC power only)

Switch Position	Power Setting
Up	Off
Down	On

Caution: Do not use both power options at the same time.

Configuring the Device



If you want to configure or reprogram the device, you must order a **Micro Developer Kit (MDK)**, model: MTMDK-ST-MDOT, (pictured above) which is sold separately. (Alternatively, a UDK2 can also work. Refer to .net link under **More Information** section.) For programming instructions, visit the mbed.org site: http://developer.mbed.org/getting-started/

Note: If you do not want to configure the device, configure your gateway to match these device default network parameters:

- **name:** MultiTech
- **phrase:** MultiTech
- **sub band:** 1 (only applies to US/915 MHz Frequency Band)

For Windows users only, you must install the device driver for the configuration port. See ARM mbed site for installation instructions and files at: https://developer.mbed.org/teams/st/wiki/ST-Link-Driver

1. As shown in the photo on the left, connect the device to the **MDK** using the flat programming or ribbon cable (with its red stripe facing you-square pad to square pad).
2. Connect the **MDK** to a **computer** (via its **USB connector**) after powering up the device.
3. Using your **computer**, connect to the new tty/COM port at 115200 bps.
4. Press **Left** button to scroll up or down. Then press **Right** button to select **Configuration** from the **Main Menu**.
5. Enter the AT command you wish to execute. To see information on the entire set of commands, enter **help** or **?** (without an AT prefix). Otherwise refer to the list of commonly-used AT commands below.

   Common AT Commands

   Change the Network Name to match your gateway

   AT+NI=1,<name>

   Change the Network Passphrase to match your gateway

   AT+NK=1,<phrase>

   Change the Frequency Sub Band to match your gateway (only applies to US/915 MHz Frequency Band)

   AT+FSB=<sub band>

   Save the configuration changes

   AT&W

6. Hold **Right** button or use **AT+EXIT** to return to the **Main Menu**.

MultiConnect® mDot™ EVB (MTDOT-EVB)

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MultiConnect® mDot™ EVB

MTDOT-EVB Quick Start

Product Overview

The MultiConnect® mDot™ EVB (MTDOT-EVB) is an evaluation platform with LoRa end-point which you can use to demonstrate or develop applications on the mDot. The device comes with pre-programmed code you can use or modify for your own application. You can use the device for: 1) a LoRa demonstration that tests an IOT application prototype or proof-of-concept, or 2) a site survey tool. With a site survey, the device performs a link check gathering data at various power levels and data rates.

Safety and Regulatory Content

For safety and regulatory content, refer to the Developer Guide for your model.

Package Contents

Your MultiConnect® mDot™ EVB (MTDOT-EVB) includes the following:

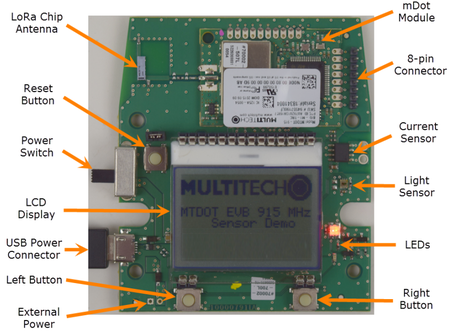
Power Source	via USB connector to a user-supplied USB power source such as a computer, USB charger, USB hub, or similar device (option for battery power but user must properly wire, connect and supply battery-see **Power Options** section)
Cables	Two cables: 8 Position Flat Programming Cable, USB Power Cable
Feet	Four Clear Adhesive Feet or Bump-ons to be attached to the bottom of the board

Device	One MultiConnect® mDot™ EVB 2.686" x 3.180" board (MTDOT-EVB) includes: ■ Power switch on left side of board ■ USB Power Connector ■ 8-pin connector on right side of board (for configuration, programming and debugging) ■ LCD display ■ LoRa chip antenna ■ Right and Left buttons (to select modes of operation) ■ Light sensor ■ Top or Red/Green LED (red = network not joined, green= network joined) ■ Bottom or Blue LED (no light = no GPS, flashing blue = no GPS lock, blue = GPS lock) ■ Internal Sensors (see **Internal Sensors** section for more details) ■ Reset button
Customer Notices	Quick Start

More Information

For more information, visit the device page on MultiTech's Developer site at: www.multitech.net/developer/products/multiconnect-mdot-box-and-evb/ and the mbed site at: https://developer.mbed.org/platforms/mdotevb/

Board Components



Device Startup

The device requires a gateway and must first join it to execute functions. In order to join, the gateway and the device must match configurations (network type, network name, network pass phrase, frequency band [not configurable, either 915 or 868 MHz] and frequency sub band). See **Configuring the Device** section.

To start up the device:

1. To power on the device, connect it via USB to a computer (if using battery, see **Power Options** section).
   - The screen displays the MultiTech logo and product name. The **Top LED** flashes green then turns red.
   - The screen displays the product name and **Select Mode** with the following menu options:

```
MTDOT-BOX/EVB
Select Mode
   Survey single
   Survey sweep
=> LoRa demo
   Configuration

Scroll        Select
  o             o
Left          Right
```

   - **Survey Single:** A single link check transaction with the gateway. The device sends a request message to the gateway and the gateway returns a response.

   - **Survey Sweep:** A series of Survey Single operations across a range of data rate and TX power combinations.
   - **LoRa demo:** LoRa Demo Mode demonstrates typical device usage. Sensor data is gathered and updated in real time. The device sends the sensor data to the gateway periodically or on a button press, depending on the mode selected. See **Internal Sensors** section for details.
   - **Configuration:** Modify the device settings using AT commands. See **Configuring the Device** section.
2. To scroll through the menu options, push the **Left** button (labeled **Scroll**) to move the selection arrow **=>**.
3. To select a menu option, push the **Right** button (labeled **Select**) when the selection arrow is on your desired option.

Internal Sensors

The device contains several internal sensors whose data is sent based on user input (when using **LoRa Demo**). The screen displays data from the following:

1. **Accelerometer:** displays the x, y and z positions of the device in g-force (g).
2. **Pressure:** displays barometric pressure in kilopascals (kPa).
3. **Altimeter:** displays elevation in meters (m).
4. **Temperature:** displays temperature in degrees Celsius (C).
5. **Light:** displays illuminance in lux (lx).