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Document details
Title: mangOH Green User Guide
Author: Sierra Wireless
Source: http://mangoh.io/

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Revision History

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<thead>
<tr>
<th>Revision number</th>
<th>Release date</th>
<th>Changes</th>
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<tr>
<td>1</td>
<td>January 2016</td>
<td>Document Creation</td>
</tr>
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- Install / Update Windows Driver
- Install a Terminal Emulator
- Install the Arduino IDE
- Install the Legato Developer Studio
- Download Firmware Updates
- Write Your First Program
1: Introduction

This user guide explains how to set up and begin using the mangOH™ green with CF3 (Common Flexible Form Factor) modules.

Once you have the mangOH green set up, visit mangoh.io for developer documentation, code samples, and other materials.

mangOH green Components and Accessories

Table 1-1 details the required and optional components needed to begin using the mangOH green in your development environment. Some of these components are available in mangOH development kits (kit contents are supplier-dependent).

Table 1-1: mangOH green Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>mangOH green</td>
<td>Pre-configured development board. The mangOH green supports CF3 modules.</td>
</tr>
</tbody>
</table>
| CF3 module(s) (See Table 1-2 on page 8 for a list of compatible Sierra Wireless modules.) | - Primary (required)—Used in the primary CF3 socket, the module includes a cellular modem and an application processor running Legato, an open source embedded platform built on Linux for hosting IoT applications (see legato.io for details).  
- Secondary (optional)—Future Use Used in the secondary CF3 socket, the module includes a cellular modem that must be associated to an application processor in the primary CF3 socket. (In this socket, only the inner ring of pins of the CF3 footprint are used.) |
| CF3 module cover and cover removal tool | Industrial-quality snap-in module cover, plus cover removal tool to disconnect the cover from the mangOH green (Note: The cover and tool shown are for WP-series modules. A similar cover and tool (not displayed) are used for HL-series modules.) |
| Micro-USB cable | Connects computer to the mangOH green for communication and to provide power for non-transmitting tests. |
Table 1-1: mangOH green Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
</table>
| Power supply                                      | • Output voltage: 4.5V to 17V  
• 10 W or higher  
• The mangOH green will operate with USB power, but DC power may be required to make and establish a full-speed mobile network connection. |
| Antenna                                           | Main RF antenna                                                                                                                                 |
| GNSS Antenna                                      | GNSS (GPS/GLONASS) active antenna                                                                                                                                 |
| Eurocard case and mangOH green faceplates          | The mangOH green fits in a Eurocard standard size casing (100x120mm).  
3D-printable files for faceplates are available at mangoh.io.                                                                                                                                 |
| Mini-USB cable                                    | Connects computer directly to the Arduino Leonardo circuit integrated into the mangOH green                                                                                                                                 |
| Mini-SIM card                                     | Mini-SIM card with an active account, or a test card for use with a call box.  
Note: Throughout this document, ‘SIM’ refers to ‘SIM’, ‘USIM’, and ‘UIM’.                                                                                                                                 |
| Micro-SIM card                                    | Micro-SIM card with an active account, or a test card for use with a call box.  
The micro-SIM is used only if the CF3 module supports dual-SIMs (selecting either the mini-SIM or the micro-SIM for use at a given time). It uses the dual SIM/SD connector.                                                                                                                                 |
| Audio cable (3.5 mm)                              | Audio cable or headset                                                                                                                                 |
| Ethernet cable (Cat5 or better)                   | Ethernet cable (Cat5 or better) for use with the mangOH green’s 100 Mbps Ethernet connector                                                                                                                                 |
Table 1-1: mangOH green Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-232 DB9 cable</td>
<td>Serial cable used for console output (male connector required on mangOH end)</td>
</tr>
<tr>
<td>Battery</td>
<td>Rechargeable Li-lon or Li-Polymer battery (3V7 nominal) for use when USB/DC power supply is unavailable</td>
</tr>
<tr>
<td>Arduino shields</td>
<td>Plug-in boards for the mangOH green’s integrated Arduino Leonardo circuit</td>
</tr>
</tbody>
</table>

Table 1-2: mangOH-compatible CF3 Modules

<table>
<thead>
<tr>
<th>Module series</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AirPrime WP8548</td>
<td>The mangOH schematic (available at mango.io), describes all interfaces that are supported by the mangOH green. The following table identifies signals that are currently not available on WP85xx/ WP75xx-series modules.</td>
</tr>
<tr>
<td>AirPrime WP75xx</td>
<td></td>
</tr>
<tr>
<td>Pin #</td>
<td>mangOH Name</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>92</td>
<td>SPI2CLK</td>
</tr>
<tr>
<td>93</td>
<td>SPI2_MOSI</td>
</tr>
<tr>
<td>94</td>
<td>SPI2_MISO</td>
</tr>
<tr>
<td>95</td>
<td>SPI2_MRXY</td>
</tr>
<tr>
<td>98</td>
<td>UART2_RTS</td>
</tr>
<tr>
<td>99</td>
<td>UART2_CTS</td>
</tr>
<tr>
<td>100</td>
<td>GPIO_Lowpower2</td>
</tr>
<tr>
<td>101</td>
<td>GPIO_Lowpower1</td>
</tr>
<tr>
<td>102</td>
<td>GPIO20/SWD_CLK</td>
</tr>
<tr>
<td>103</td>
<td>GPIO31/SWD_DIO</td>
</tr>
<tr>
<td>107</td>
<td>ADC2</td>
</tr>
<tr>
<td>108</td>
<td>ADC3</td>
</tr>
<tr>
<td>147</td>
<td>IOT2_GPIO4</td>
</tr>
</tbody>
</table>

2: Setup and Installation

Safe Handling Recommendations

To help prevent accidental damage to the mangOH green:

- Use safe ESD-handling practices (such as wearing proper ESD straps) to avoid possible ESD damage.
- Avoid touching the CF3 module sockets (J200, J601). These pins can be damaged if they catch on clothing or other materials.

![Safe Handling Recommendations — CF3 Socket Locations (Do Not Touch)](image)

- Mount the mangOH green in a case, or attach standoffs (not included) to the mounting holes at each corner of the board to avoid damage to components on the bottom side of the board.

![Case-mounted mangOH green](image)
Initial Setup

To begin using the mangOH green, set up your hardware and software:

1. Insert a suitable CF3 module in the primary socket. See Insert/Remove Embedded Modules on page 11.
2. Select Primary Power Supply. See page 15.
3. If you will be establishing a mobile network connection, insert a mini-SIM. See Insert SIM Card(s) on page 17.
5. Install / Update Windows Driver. See page 35.
6. Connect the mangOH green to your computer using the USB cable provided. If you selected USB power in Step 2, the power LED lights up.
7. If you selected the DC power supply in Step 2, plug a DC wall adapter into the DC barrel jack. (The wall adapter must meet the requirements in Table 1-1 on page 6.) The power LED lights up when power is supplied.
8. Install a Terminal Emulator. See page 36.

The mangOH green is now ready to be used.

- For information on additional hardware features, see Hardware Setup and Operation on page 11.
- For instructions on writing a program, see Write Your First Program on page 36.
3: Hardware Setup and Operation

This chapter describes how to install various components on the mangOH green, and how to configure and control features using connectors and switches.

Insert/Remove Embedded Modules

The mangOH green has two CF3 module sockets
- Primary (J200)—The primary module includes a wireless modem and application processor. All pins are used.
- Secondary (J601)—The secondary module, if used, includes a wireless modem that is associated with the primary module. Only the inner ring pins (of the CF3 footprint) are used.

To insert a CF3 module:
1. Place the mangOH green face-up.

Figure 3-1: mangOH green—Top View
2. Hold the module above the socket and line up the polarity marks on the module and socket. (Primary module installation shown.)

![Figure 3-2: CF3 Module Positioning](image)

3. Place the module onto the socket. The module should drop into place when you have it aligned properly. Do not insert at an angle as this may damage the socket pins.

![Figure 3-3: CF3 Module Inserted](image)
4. Attach the module cover:
   a. Hold the module cover above the CF3 module and line up the polarity marks on the module and cover.

4-5: Installing Module Cover

b. Place the cover on the module, then press down carefully until you hear the cover click into place. Make sure all sides of the cover have clicked into place.

4-5: Installing Module Cover

To remove a CF3 module (primary module displayed below):
1. Remove the module cover using the module cover removal tool—Starting at one corner, insert the tool in the pair of holes and carefully pry the cover away from the module.
2. Repeat at the other locations (there are pairs of pry holes on each side).
3. Lift the cover off the module.
4. Carefully pinch the module and pull it straight up out of the socket.

**Power Supply**

The mangOH green has the following supplies:

**Table 3-1: mangOH green Power Supplies**

<table>
<thead>
<tr>
<th>Supply</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>DC power</td>
</tr>
<tr>
<td></td>
<td>USB</td>
</tr>
</tbody>
</table>

*Note: USB current (500 mA) is sufficient for non-transmitting tests, but may not be enough to satisfy full power requirements of the mangOH green.*

| Backup | Battery | An optional Li-Ion or Li-polymer (3V7 nominal) rechargeable battery can be installed to power the board if the primary power supply fails. |
Select Primary Power Supply

To select the primary power supply:

1. Place the mangOH green face-up and locate the power supply jumper pins (CN1204).

2. Select the power source:
   - USB power—Place a jumper across the two pins farthest from the DC power jack.
   - DC power—Place a jumper across the pins closest to the DC power jack.
Connect Battery Backup

Optionally, you can connect a rechargeable Li-Ion/Li-Polymer battery to the mangOH green to provide uninterrupted power in the event that the primary power supply (DC or USB) fails.

If a jumper is placed on CN1201, the mangOH green recharges the battery and then provides a trickle charge to maintain the battery’s full charge.

To connect a rechargeable Li-Ion/Li-Polymer battery to the mangOH green:

1. Connect the battery to CN1202.

2. If you want the battery to recharge while connected to the board, place a jumper across the pins on CN1203 (Recharge select).

Caution: If a rechargeable battery is not connected to the board, make sure to remove the jumper from CN1203.
Caution: The board is designed to use a rechargeable Li-Ion or Li-polymer battery. Regular (non-rechargeable) batteries are NOT recommended. However, if a regular battery is used, DO NOT place a jumper on CN1203 as this will damage the battery and possibly the board.

RTC Capacitor

The mangOH green has a capacitor that maintains the RTC.

To enable the ability to manually discharge the capacitor, install a switch on CN320. The capacitor can then be discharged by pressing this switch.

![RTC Capacitor](image)

Insert SIM Card(s)

The mangOH green supports dual SIM functionality (if supported by the CF3 module).

### Table 3-2: SIM connectors

<table>
<thead>
<tr>
<th>CF3 Interface</th>
<th>Type</th>
<th>Connect or</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIM1</td>
<td>Mini-SIM</td>
<td>CN801</td>
<td>Hot-swappable&lt;br&gt;By default, a SIM detect switch is activated when a mini-SIM is inserted or removed. For details, see Table 3-6 on page 30.</td>
</tr>
<tr>
<td>UIM2</td>
<td>Micro-SIM</td>
<td>CN802</td>
<td>Not hot-swappable</td>
</tr>
</tbody>
</table>

To use a UMTS/LTE CF3 module to establish a mobile network connection, you must install at least one SIM card:
- Live card(s) with active accounts, or
- Test card(s) for use with a call box (for example, an Agilent 8960 or Rohde & Schwarz CMU200)
Note: A SIM card is not required if you want to connect to a LAN using the Ethernet port.

To install the SIM card(s):

1. Place the Dev Kit face-down (as shown).

2. Insert the SIM card(s) with contacts face-down into the desired slot(s)—note the locations of the notched corners of the cards in Figure 3-13. (The mini-SIM is inserted with the flat end first, and the micro-SIM is inserted with the notched end first.)

Important: CN802 is a dual-connector—a micro-SIM can be placed in the lower slot, and a micro-SD can be placed in the upper slot.
Insert microSD Card

The mangOH green includes a microSD card slot in the top part of CN802.

To install a microSD card:

1. Place the Dev Kit face-down (as shown).

2. Insert the microSD card with contacts face-down into the top slot of CN802.

**Important:** CN802 is a dual-connector—a micro-SIM can be placed in the lower slot, and a micro-SD can be placed in the upper slot.
Connect Antenna(s)

The mangOH green includes three antenna ports for the primary CF3 module.

**Table 3-3: Antenna Ports**

<table>
<thead>
<tr>
<th>Type</th>
<th>Connector</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>CN307</td>
<td>Required to establish a mobile network data connection</td>
</tr>
<tr>
<td>Diversity</td>
<td>CN304</td>
<td>Used only if primary CF3 supports diversity.</td>
</tr>
</tbody>
</table>
| GNSS    | CN306     | • Required to enable GNSS functionality  
|         |           | • Active                                          |
|         |           | • 3.3 V bias voltage                              |

Note: If needed, the board can be configured to use SMA connectors. For details, see Table 3-6 on page 30.

To connect an antenna to the Main, Diversity, or GNSS antenna connector:
1. Place the mangOH green face-up.
2. Attach the antenna cable’s female connector to the board’s male connector and press firmly to get a secure connection. (Note that female connectors are rated for a limited number of reconnects before the connector wears out, so should be left connected if possible. Use a U.FL extraction tool to put less strain on the connector during removal.)
Insert/Remove IoT Modules

The mangOH green includes three single-width IoT module slots.
If the board uses module mounting rails and you want to use a double-width (2-slot) or triple-width (3-slot) IoT module, remove the rails between the slots you will be using.

**Caution:** Handle IoT modules carefully to make sure components are not accidentally damaged, and hold modules by their edges to avoid possible ESD damage.

To install an IoT module in any IoT slot:
1. Remove power from the mangOH green. (This step is recommended in case the IoT module is not hot-swappable or needs a reset.)
2. Check the IoT module to make sure you know which side is the top. (Modules must not be inserted upside-down.)
3. Slide the IOT module into the rails until it meets the connector, then press firmly to seat the module into the connector.

*Figure 3-20: IoT Module Insertion*
To remove an IoT module:

1. Pull the module straight out, using safe ESD-handling practices (such as wearing proper ESD straps).

For detailed interface information for each of the IoT slots, refer to the mangOH Developer’s Guide. For detailed information about IoT modules, refer to the IoT Module Specification.

**Arduino Leonardo**

The mangOH green includes an integrated Arduino Leonardo circuit (Arduino connector for use with Arduino shields, and an Atmega32 microcontroller).
The Arduino Leonardo is controlled directly via a mini-USB cable connection from your computer. This connection is used to download sketches from your computer using the Arduino IDE.

By default, the Arduino Leonardo UART is configured to connect to the primary smart module’s USB using an FTDI conversion chip (UART to USB). For details, see Table 3-6 on page 30.

In Figure 3-23, the ‘Bridge application’ is a Legato application (downloadable from legato.io) that allows communication between the CF3 module and the Arduino Leonardo. See the mangOH to Cloud Developer’s Guide for details.

**Connect Arduino Shield**

To connect an Arduino shield to the mangOH green:

1. Position the shield above the Arduino headers. (Note that the two rows of headers have different numbers of pins—make sure to position the shield correctly.)

2. Hold the shield by its edges and press straight down into the headers.
Audio Connection

The mangOH green includes a 3.5 mm audio jack for use with audio-enabled CF3 modules. If supported by the CF3 module, the jack can be used for making a voice call.

By default, the audio jack is connected to the onboard mangOH codec, and is configured for use with a CTIA/AHJ-compatible headset. For details, see Table 3-6 on page 30.
The mangOH green includes a 100 Mbps Ethernet port that may be used to connect the board to a LAN.

The connector has two LEDs that exhibit the behavior described in the following table.

**Table 3-4: Ethernet LED indicators**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Purpose</th>
<th>Description</th>
</tr>
</thead>
</table>
| Green (Left side) | Connection state | • Solid—Connected  
                      |                                                                 | • Blinking—Connected and transmitting/ receiving  
                      |                                                                 | • Off—No connection |
| Amber (Right side) | Connection speed   | • On—100 Mbps  
                      |                                                                 | • Off—10 Mbps |
USB Host Connection

The mangOH green includes a USB Host port (USB 2.0) for attaching a peripheral device, memory stick, etc.

RS-232 Console Output Connection

The mangOH green includes an RS-232 DB9 connector for console output. By default, this port is enabled and configured to connect to the primary module’s UART2 (two-wire interface).
LED Indicators

The mangOH green includes several LED indicators.

**Table 3-5: mangOH green LEDs**

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—Power</td>
<td>On when power is supplied by any power source (USB, DC, battery)</td>
</tr>
<tr>
<td>2—Arduino Rx</td>
<td>On when the Arduino is receiving data</td>
</tr>
<tr>
<td>3—Arduino Tx</td>
<td>On when the Arduino is sending data</td>
</tr>
<tr>
<td>4—User-controlled</td>
<td>User can control on/off behavior</td>
</tr>
<tr>
<td>5—Battery charging</td>
<td>On when the battery is recharging</td>
</tr>
<tr>
<td>6—RF Rx/Tx</td>
<td>On when the CF3 module is sending (Tx) or receiving (Rx) data</td>
</tr>
<tr>
<td>7—W_DISABLE_N</td>
<td>On when RF is enabled</td>
</tr>
</tbody>
</table>
Reset Switches

The mangOH green includes two reset switches:

- Board reset (SW400)—Press and hold for 5 seconds to reset the board (including the integrated Arduino Leonardo circuit)
  Note that when the board is resetting, the reset signal is held LOW until the primary module is fully booted.

- Arduino reset (SW1500)—Press and hold for 5 seconds to reset the integrated Arduino Leonardo circuit.

For details on resetting the mangOH green or specific application blocks, see the Developer’s Guide.
mangOH green User Guide

mangOH green Configuration

Default Configuration

The mangOH green's default configuration is described in Table 3-6.

Table 3-6: mangOH green Default Configuration

<table>
<thead>
<tr>
<th>Component / Switch</th>
<th>Default Configuration / Behavior</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Antenna connectors (Main, Diversity, GPS) | • U.FL connectors  
• 3.3 V bias voltage for active antennas | SMA connectors can be added, if required, by a user who is proficient at soldering. For details, refer to the mangOH green schematic available at mangoh.io. |
| Audio connector (CN500) | • Connected to onboard mangOH codec  
• CTIA/AHJ-compatible headset | Reconfiguration to use an OMTP-compatible headset requires soldering. |
| RS-232 connector (CN700) | • Enabled  
• Connected to primary module's UART2 | |
| LEDs | All LEDs are enabled and will exhibit their default behaviors | |
| System reset signal (RESET_IN_N) | Held LOW until primary module is fully booted | Peripherals on the mangOH green are not activated until the module is fully booted. |
| SIM1/SIM2 Detect | • SIM1 Detect uses physical sensor to detect SIM card insertion/removal  
• SIM2—Switch SW401 (position 4) can be used to detect SIM2:  
• OFF—SIM2 detected  
• ON—SIM2 not detected | |
Switch and Jumper Configuration Options

The mangOH green uses several switches and jumpers to configure the board and CF3 module's operation, as detailed below in Table 3-7 through Table 3-9.

To locate these switches and jumpers, see Figure 3-34 on page 33 and Figure 3-35 on page 34.

Table 3-6: mangOH green Default Configuration (Continued)

<table>
<thead>
<tr>
<th>Component/Switch</th>
<th>Default Configuration/Behavior</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD connector (CN802)</td>
<td>Connected to primary module</td>
<td>Board can be configured using a software command to connect primary module’s SDIO signals to IOT1 instead of SD connector.</td>
</tr>
<tr>
<td>Peripheral interfaces (UART, SPI, I2C, etc.)</td>
<td>See the Developer’s Guide for details.</td>
<td></td>
</tr>
<tr>
<td>Arduino UART</td>
<td>Connected to primary module's USB using FTDI conversion chip (UART to USB)</td>
<td>Board can be configured using a software command to connect Arduino UART to WP UART1</td>
</tr>
</tbody>
</table>
| Module Signals Control (SW401) | • POWER_ON (Dip 1)=ON (Unit is enabled)  
• All others = OFF | |

Table 3-7: CN1204—Board Power Select

<table>
<thead>
<tr>
<th>Power supply selection</th>
<th>Jump 1–2</th>
<th>Jump 2–3</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB power, through micro-USB port (CN311–USB port)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>DC power, through DC barrel jack (CN1200–barrel jack power)</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

a. Required: Select one option only (Jump 1–2 or Jump 2–3). For details, see Select Primary Power Supply on page 15.

Table 3-8: CN1203—Battery Recharge Select

<table>
<thead>
<tr>
<th>Battery recharge behavior</th>
<th>Jump 1–2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery will recharge while power is supplied by USB or DC</td>
<td>Yes⁸</td>
</tr>
<tr>
<td>Battery will not recharge</td>
<td>No</td>
</tr>
</tbody>
</table>

a. IMPORTANT: Jumper must not be used if there is no battery connected. For details, see Connect Battery Backup on page 16.

Table 3-9: SW401—Module Signals Control

<table>
<thead>
<tr>
<th>Signal</th>
<th>Dip</th>
<th>On/Off</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER_ON</td>
<td>1</td>
<td>On (Default)</td>
<td>Enable POWER_ON signal for primary module (J200)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>Disable POWER_ON signal</td>
</tr>
</tbody>
</table>
### Table 3-9: SW401—Module Signals Control (Continued)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Dip</th>
<th>On / Off</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved</td>
<td>2</td>
<td>On</td>
<td>tbd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>tbd</td>
</tr>
<tr>
<td>W_DISABLE_N</td>
<td>3</td>
<td>On</td>
<td>Disable RF power for primary and secondary modules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>Enable RF power for primary and secondary modules</td>
</tr>
<tr>
<td>SIM2_Detect</td>
<td>4</td>
<td>On</td>
<td>No SIM detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>SIM detected</td>
</tr>
<tr>
<td>SW_PWR_ON</td>
<td>5</td>
<td>On</td>
<td>Enable POWER_ON signal for secondary module (J601)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>Disable POWER_ON signal</td>
</tr>
<tr>
<td>S_TP1_BOOT</td>
<td>6</td>
<td>On</td>
<td>Enable TP1_BOOT functionality for secondary module. Pull the signal low to enter download mode for firmware updates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>Secondary module functions normally.</td>
</tr>
<tr>
<td>TP1_BOOT</td>
<td>7</td>
<td>On</td>
<td>Enable TP1_BOOT functionality for primary module. Pull the signal low to enter download mode for firmware updates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>Primary module functions normally.</td>
</tr>
<tr>
<td>RESET_IN_N</td>
<td>8</td>
<td>On</td>
<td>Reset signal is low until primary module fully boots.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off (Default)</td>
<td>tbd</td>
</tr>
</tbody>
</table>
Figure 3-34: mangOH green Assembly—Top Side Switches/Connectors

Note: For reference only. For latest schematic, visit mangoh.io.
Figure 3-35: mangOH green Assembly - Bottom Side Switches/Connectors

Note: For reference only. For latest schematic, visit mangoh.io.
4: Software Setup

This chapter describes software resources that you will need on your computer to access the mangOH green and develop applications for its CF3 module and integrated Arduino circuit.

Sample applications and instructional materials are available from the sites mentioned in this chapter. For detailed information on developing for the mangOH green, see the mangOH green Developer's Guide and related documents (available from mango.io).

Install / Update Windows Driver

If you are using a Windows computer, you will need to install the Legator driver for the CF3 module that you install in your mangOH green.

1. Visit mango.io to download the Windows driver and driver installation instructions for your CF3 module.
2. Install the Windows driver.
3. When the mangOH green is connected via USB to the computer, display the Device Manager (Control Panel > System > Device Manager).

If the driver installed correctly, you will see the following items listed:

- Modems > Sierra Wireless WWAN Modem (This is the module in socket J200.)
- Ports [COM & LPT] > Sierra Wireless DM Port
• Ports [COM & LPT] > Sierra Wireless NMEA Port (This is the port that you will use to communicate with the module from your terminal emulator.)

Install a Terminal Emulator

To communicate with the mangOH green, you need to use a terminal emulator program such as Tera Term or HyperTerminal®.

When you have an emulator installed, use it to establish a console connection to the mangOH green:
• Port—Serial modem COM port (for Sierra Wireless devices, this is the Sierra Wireless NMEA Port)
• Baud rate—115200

Install the Arduino IDE

To work with the mangOH green's integrated Arduino circuit, you must download and install the Arduino IDE (Integrated Development Environment). The IDE is used to write code ('sketches') and upload them to the mangOH green's integrated Arduino Leonardo circuit. Installation and usage information is available at mangoh.io.

Install the Legato Developer Studio

To create Legato applications for the CF3 module, download and install the Open AT Developer Studio (a Legato IDE) available at mangoh.io.

Download Firmware Updates

Firmware updates will be made available for download from mangoh.io.

Write Your First Program

For instructions on building applications (including writing a ‘Hello World’ program to test your mangOH green), and to download sample Arduino sketches and Legato applications, visit mangoh.io.