RapidConnect Development Board

The RapidConnect Development Board provides developers with a selection of convenient interfaces to a RapidConnect ZigBee module.

When connected via USB to a PC running RapidSE Desktop or RapidHA Desktop, the Development Board offers the same functionality as the RapidConnect USB stick. Additionally, the Development Board offers UART and SPI connectivity for integration directly with third-party hardware.

Power

JP1 is used to select between USB or user-provided DC power sources. To use the USB connection as a power source, the shorting jumper on JP1 should be on pins 1-2 (this is the default position). To use an external DC power source, the shorting jumper must be moved to pins 2-3. The on-board LDO will convert either USB-provided 5V or user-provided external power to 3.3V.

USB Connection
5V up to 250mA

Alternate Power Connector (J6 - See I/O section)
Recommended DC Power Source
4-5VDC 250mA

Absolute Max Input Voltage
6.5VDC (*Note: Higher voltage levels will result in damage to the unit*).

LEDs

Three LED indicators are provided:
TX – Flashes when the module transmits serial data
RX – Flashes when the module receives serial data
PWR – Lights when there is 3V power present on the board

Connectivity

JP2 & JP3 jumper installed on pins 1-2 (the default positions for those jumpers)
Normal USB operation

JP2 & JP3 jumper installed on pins 2-3
External TTL UART enabled on connector J4, USB disabled (Note: the device can still be powered via USB while in TTL mode)

I/O

Refer to the Ember EM357 data sheet for complete GPIO usage details and specs.

J1 – Ember Debug and Programming InSight Port
Pin 1 = +3.3v	Pin 6 = JCLK/SWCLK
Pin 2 = JTDO/SWO	Pin 7 = JTMS/SWDIO
Pin 3 = nJRST	Pin 8 = nReset
Pin 4 = JTDI	Pin 9 = PTE
Pin 5 = GND	Pin 10 = PTD

J2 – mini-B USB Connector

J3 – Bootloader Mode
Installed = Bootloader mode enabled

J4 – EM357 UART (3V) Connection
Pin 1 = PB1 (module TX)
Pin 2 = PB2 (module RX)
Pin 3 = GND

EM357 SPI Port (slave mode)
J7 Pin 10 = PB1 (MISO)	J7 Pin 7 = PB4 (SELECT)
J7 Pin 11 = PB2 (MOSI)	J7 Pin 1 = GND
J7 Pin 8 = PB3 (CLK)	

(Note: USB mode must be disabled before SPI can be used)

J5 – EM357 Spare GPIO
Pin 1 = PB1	Pin 4 = PB4
Pin 2 = PB2	Pin 5 = GND
Pin 3 = PB0	

J6 – Alternate Power Connection
Pin 1 = Vin
Pin 2 = GND
See Power Section

J9 – CTS/RTS connector
Pin 1 = CTS (USB transceiver TTL input)
Pin 2 = RTS (USB transceiver TTL output)

J7 & J10 – EM357 GPIO
J10 Pin 1 = PB2	J7 pin 12 = PB0
J10 Pin 2 = PB3	J7 pin 13 = PC1
J7 Pin 1 = GND	J7 pin 14 = No Connection
J7 Pin 2 = PB1	J7 pin 15 = No Connection
J7 pin 3 = GND	J7 pin 16 = PB7
J7 pin 4 = PB4	J7 pin 17 = JRST
J7 pin 5 = PA4	J7 pin 18 = NRESET
J7 pin 6 = PA5	J7 pin 19 = JTDI
J7 pin 7 = PB4	J7 pin 20 = JTMS
J7 pin 8 = PB3	J7 pin 21 = JTDO
J7 pin 9 = PA6	J7 pin 22 = JTCK
J7 pin 10 = PB1	J7 pin 23 = GND
J7 pin 11 = PB2	J7 pin 24 = +3.3v

This development board employs a radio module with FCC ID: XFFZGB357PA10