RapidConnect ZigBee USB Stick

The RapidConnect ZigBee USB Stick is a plug-and-play ZigBee Smart Energy or ZigBee Home Automation solution. Powered by MMB Networks' RapidConnect embedded software platform, it enables customers to add a fully-functional ZigBee Smart Energy or Home Automation implementation to any device with a USB port.

MMB Networks offers a variety of hardware and software tools to facilitate integration. For more information, please visit http://www.mmbnetworks.com

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1 | General Information

Please note specifications cited as EM357 are taken from the EM357 datasheet (this should also be noted where referred to).

The RapidSE ZigBee USB Stick is currently offered in two different versions: Z357PA22-USB, which includes 1024 kB of serial flash memory, and Z357PA21-USB, which does not have any serial flash memory.

2 | Supported Operating Systems

- Windows 98SE
- Windows XP
- Windows Vista
- Windows 7
- Windows CE *
- MAC OS-9
- MAC OS-X *
- Linux *

* Drivers for these systems are available from Silicon Labs. The bridge chip is a CP2102 with Vendor ID 0x10C4 and Product ID 0x8293. A Linux driver is included in the 2.6.25 kernel.

3 | Memory

SKU	RAM (kB)	On-Chip Flash (kB)	Serial Flash (kB)
Z357PA21-USB	12	192	N/A
Z357PA22-USB	12	192	1024

4 | Electrical Specifications

4.1 | Absolute Maximum Ratings

Parameter	Minimum	Maximum	Units
Supply Voltage, Vdd	-0.3	5.5	V
Storage Temperature range	-40	105	°C

4.2 | Recommended Operating Conditions

Parameter	Test Condition	Min	Typical	Max	Units
Supply Voltage, Vdd		4.5	5	5.5	V
Supply Current	With Flash, TX set to +20dBm			191	mA
Supply Current	No Flash, TX set to +20dBm			166	mA
Supply Current	With Flash, RX			77.5	mA
Supply Current	No Flash, RX			52.5	mA
Operating Temperature Range		-20	25	85	°C

5 | RF Specifications

5.1 | Receive Specifications

EM357 Receive Characteristics

Note: Receive measurements were collected at room temperature (25°C), at 50Ω terminal load connected to the U.FL socket.

Parameter	Test Condition	Min	Typical	Max	Units
Frequency range		2400		2500	MHz
Sensitivity	1% PER, 20 byte packet defined by IEEE 802.15.4-2003	-107	-106	-100	dBm
Saturation (maximum input level for correct operation)		-3	2		dBm
High-side adjacent channel rejection	IEEE 802.15.4-2003 signal at – 82 dBm		41		dB
Low-side adjacent channel rejection	IEEE 802.15.4-2003 signal at – 82 dBm		40		dB
2nd high-side adjacent channel rejection	IEEE 802.15.4-2003 signal at – 82 dBm		54		dB
2nd low-side adjacent channel rejection	IEEE 802.15.4-2003 signal at – 82 dBm		52		dB
Relative frequency error (2x40 ppm required by IEEE 802.15.4-2003)		-120		120	ppm
Relative timing error (2x40 ppm required by IEEE 802.15.4-2003)		-120		120	ppm
Linear RSSI range		35			dB

5.2 | Transmit Specifications

Parameter	Min	Typical	Max	Units
Output Power at highest power setting	20	21	21.5	dBm
Error vector magnitude as per IEEE 802.15.4		7	15	%
Carrier frequency error	-40		40	ppm

6 | **Mechanical Specifications**

6.1 | Physical Dimensions
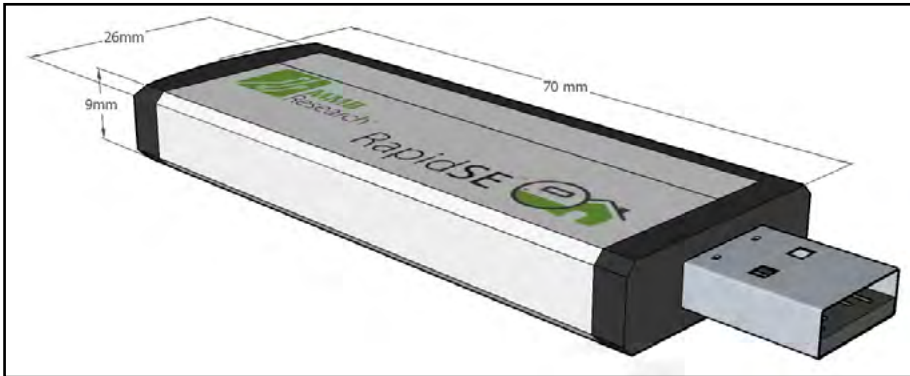
Dimension	Distance
Length	70 mm
Width	26 mm
Height	9 mm

7 | **Regulatory Approvals**

7.1 | FCC

7.1.1 | FCC Notice

This device (Z357PA21-USB, Z357PA22-USB) complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

To comply with FCC RF Exposure requirements, users of this device must ensure that the USB Stick be installed and/or configured to operate with a separation distance of 20cm or more from all persons.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

7.1.2 | Labeling Requirements

The user of this device is responsible for meeting the FCC labeling requirements. A clearly visible label on the exterior enclosure of an incorporating device must list the FCC ID "S4GEM35X2" and the FCC Notice above (section 7.1.1).

8 | **Ordering Information**

SKU	Serial Flash Memory (kB)	Certificate
Z357PA21-USB-P-TC	N/A	Test Certificate
Z357PA21-USB-P-PC	N/A	Production Certificate
Z357PA22-USB-P-TC	1024	Test Certificate
Z357PA22-USB-P-PC	1024	Production Certificate