

Ketra Inc.

Ketra VER003 2.4GHz ZigBee Module

User Manual

Part #: 830-000005-xx

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Description

The Ketra VER003 2.4GHz ZigBee Module (Ketra Part Number: 830-000005-xx) is utilized in Ketra lighting and control systems. The module is used for communication over private wireless network and not used for other commercial purposes not designated by Ketra.

Ketra, Inc. designed the ZigBee Module compliant with the IEEE 802.15.4 standard. The module is based upon the EM385x ZigBee SOC. The module's key application is for use with Ketra lighting control systems.

The Ember EM358x is a fully integrated System-on-Chip that integrates a 2.4 GHz, IEEE 802.15.4-2003-compliant transceiver, 32-bit ARM® Cortex™-M3 microprocessor, flash and RAM memory, and peripherals of use to designers of ZigBee-based systems.

The transceiver uses an efficient architecture that exceeds the dynamic range requirements imposed by the IEEE 802.15.4-2003 standard by over 15 dB. When operating on channel 26, the radio transmit power shall be set no higher than +3dBm. When operating on channels 11-25 the transmit power may be set as high as +8dBm. The integrated receive channel filtering allows for robust co-existence with other communication standards in the 2.4 GHz spectrum, such as IEEE 802.11-2007 and Bluetooth. The integrated regulator, VCO, loop filter, and power amplifier keep the external component count low.

The Zigbee Module communicates over wireless network to control the color point and intensity (among other items) of the end product lamp and/or luminaire. The Zigbee module can be designed into various end products for communication needs. Examples are Ketra S38 lamp, Keypad wireless controller and Satellite controller. Software and firmware are defined by Ketra per product as required.

The ZigBee Module is intended to interface with compatible Ketra products and is powered and controlled per manufacturers recommended operating conditions.

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Electrical Requirements

ABSOLUTE MAXIMUM RATINGS

Description	Ketra ZigBee Module		Unit
	Min	Max	
Power Supply Voltage (V _{DD})	-0.3	3.6	VDC
Voltage on any I/O Line	-0.3	V _{DD} + 0.3	VDC
Storage Temperature Range	-40	125	°C
Reflow Soldering Temperature	–	260	°C

Note: Exceeding the maximum ratings may cause permanent damage to the module or devices.

RECOMMENDED OPERATING CONDITIONS

Description	Ketra ZigBee Module			Unit
	Min	Typ	Max	
Power Supply Voltage (V _{DD})	2.1	3.3	3.6	VDC
Input Frequency	2405	–	2480	MHz
Ambient Temperature Range	-40	25	85	°C

Device Label



Figure 1 Device Label



SN: KZ01234569
 DD: T1994
 FCC ID: 2AB3CJA7
 PN: 830-000006-02

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FCC ID

FCC ID: 2AB3CJA7

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AGENCY CERTIFICATIONS

FCC Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning (Part 15.21)

Changes or modifications not expressly approved by Ketra could void the user's authority to operate the equipment.

20 cm Separation Distance

To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

OEM Responsibility to the FCC Rules and Regulations

The VER003 2.4GHz ZigBee Module has been certified per FCC Part 15 rules for integration into products without further testing or certification. To fulfill the FCC certification requirements, the OEM of the Module must ensure that the information provided on the Label is placed on the outside of the final product. The Module is labeled with its own FCC ID Number. If the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2AB3CJA7" or "Contains FCC ID: 2AB3CJA7"

The OEM of the VER003 2.4GHz ZigBee Module must only use the approved antenna, (PCB Trace Antenna) that has been certified with this module. The OEM of the VER003 2.4GHz ZigBee Module must test their final product configuration to comply with Unintentional Radiator Limits before declaring FCC compliance per Part 15 of the FCC rules.

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