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Feature

The ZBM-1.0 module is an integral system for IEEE 802.15.4 application. The CC2530 is the control center in the module, which brings the module the low power consumption feature. ZBM-1.0 can amplify or sample signals, thanks to its integrated op-amp and 12 bit ADC(6 Channel). The module provides the reset function, 256 KB program storage space, and supports USART (full-duplex) or other serial communication protocol. A number of programmable digital I/O ports are reserved to increase the interface flexibility between the baseboard and the module.

The module can be configured to use the built-in antenna or external antenna. RFx2401 on the module, which functions as the RF PA and LNA, provides a stable 2.4G transmitting and receiving channel. This module can be used as an excellent communicating node in a Zigbee wireless intelligent system.

Application

Zigbee Systems

Home/Building Automation

Lighting Systems

Industrial Control and Monitoring

Low-Power Wireless Sensor Networks

Technique Parameters

Table1. Module Parameters

Categories	Feature	parameters
Wireless specification	Function	transceiver
	Protocol	IEEE 802.15.4 /zigbee
	Operating Frequency	2.4-2.5Ghz
	Max Transmit Power	
	Receive Sensitivity	
	Max distance	
	Data Rate	250Kbps
	Impedance	50-Ohm
electrical specification	Supply Voltage	2.0V-3.6V
	Host Interface	UART/SPI
	Connect	Internal Antenna or External Antenna via SMT PAD
	Current	Ide: Active:
	Dimensions	30.35mm X14.99mm
physical		

Circuit Description

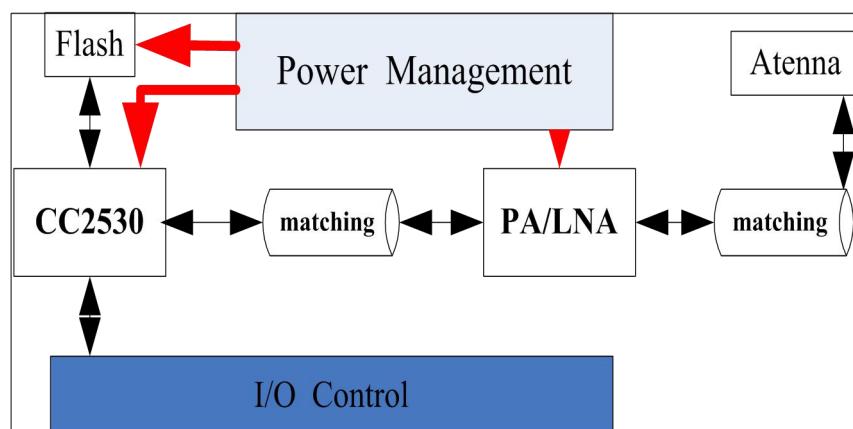


Figure1. Circuit Diagram

ZBM-1.0 has an independent power management system, and the system provides a high quality of power supply for the whole module. Flash is used for the external expansion memory. The Excellent matching circuit in RF-Front ensures that the signal has minimal signal loss and radiation. The I/O Control provides the interfaces for a variety of peripherals (Timer, PWM, Interrupt, AD, the Debug) from the module to the baseboard. Each peripheral that connects to the module I/O pins can choose between two different I/O pin locations with the provided flexibility in various applications.

Pin Description

Tabel2. Module Pin

No.	Name	Mode	description
1	NC		
2	NC		
3	GND	Ground	Connected to ground plane
4	VCC	Power	2–3.6V power-supply
5	RST	Digital Input	Reset, active-low
6	P1.0	Digital I/O	
7	P1.1	Digital I/O	
8	P1.2	Digital I/O	
9	P1.3	Digital I/O	
10	P1.4	Digital I/O	
11	P1.5	Digital I/O	20-mA drive capability
12	P1.6	Digital I/O	
13	P1.7	Digital I/O	
14	P2.0	Digital I/O	
15	P2.1	Digital I/O	
16	P2.2	Digital I/O	
17	P2.3	Digital I/O	
18	P2.4	Digital I/O	
19	P2.5	Digital I/O	
20	P2.6	Digital I/O	

Note: According to your actual application, the I/O port pins can be configured to

different functions.

Pin Definition:

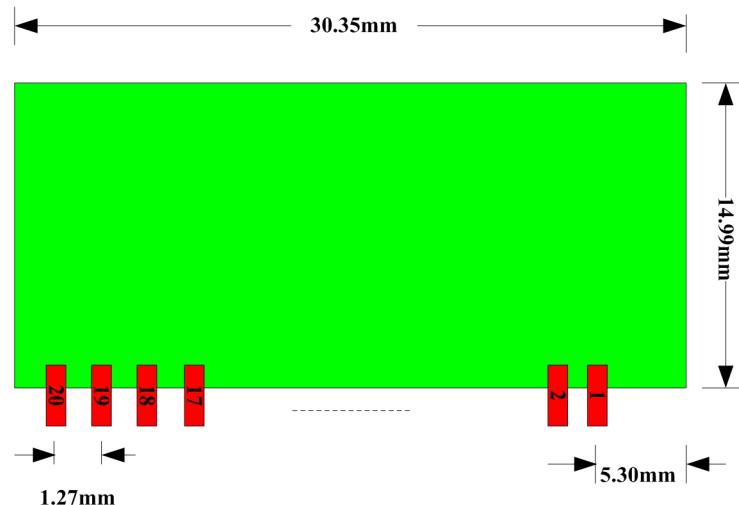


Figure2. Pin Definition

Reference Application

The ZBA-B is an intelligent lighting control device that contains ZBM-1.0 module. The ZBA-B product is shown as follows:



Figure3. ZBA-B

ZBA-B uses ZBM-1.0 module to send and receive the commands from the gateway to turn on/off the connected light or adjust its brightness and color. At the

same time, ZBA-B can also report the light's state or related data to the gateway.

ZBM-1.0 Module is the end device, which establishes wireless connection between ZBA - B and gateway, and in this application, a large number of tests have shown that the module applied in intelligent housing system has good stability, reliability under low power consumption.

When the module is used for ZBA - B, the pins are defined as follows:

Table3. ZBA-B Pin Description

No.	Name	Mode	description
1	NC		
2	NC		
3	GND	Ground	
4	VCC	Power	External power input
5	RST	Digital Input	Power on reset
6	P1.0	Reserved	
7	P1.1	Reserved	
8	P1.2	PWM1	Color dimming (RGBW)
9	P1.3	PWM2	Color dimming(RGBW)
10	P1.4	PWM3	Color dimming (RGBW)
11	P1.5	PWM4	Color dimming (RGBW)
12	P1.6	Test Mode	Test Flag
13	P1.7	0-10V PWM	Drive power driver
14	P2.0	RGBW Switch	RGBW Switch signal
15	P2.1	Reserved	
16	P2.2	Reserved	
17	P2.3	Reserved	
18	P2.4	Reserved	
19	P2.5	Status Indicator Led	
20	P2.6	0-10V PWM Switch	

Federal Communication Commission (FCC) Radiation Exposure Statement

The device has been evaluated to meet general RF exposure requirement,
The device can be used in portable exposure condition without restriction

FCC statements:

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

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

A certified modular has the option to use a permanently affixed label, or an electronic label. For a permanently affixed label, the module must be labelled with an FCC ID: 2AHUTLYNXUSZBM01. The OEM manual must provide clear instructions explaining to the OEM the labelling requirements, options and OEM user manual instructions that are required

For a host using a this FCC certified modular with a standard fixed label, if (1) the module's FCC ID is notvisible when installed in the host, or (2) if the host is marketed so that end users do not have straightforward commonly used methods for access to remove the module so that the FCC ID of the module is visible; then an additional permanent label referring to the enclosed module:

"Contains Transmitter Module FCC ID: 2AHUTLYNXUSZBM01 or "Contains FCC ID: 2AHUTLYNXUSZBM01 " must be used. The host OEM user manual must also contain clear instructions on how end users can find and/or access the module and the FCC ID.

Host product is required to comply with all applicable FCC equipment authorizations regulations, requirements and equipment functions not associated with the transmitter module portion. Compliance must be demonstrated to regulations for other transmitter components within the host product; to requirements for unintentional radiators (Part 15B). To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. If a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with

the host, we suggest the host device to recertify part 15B to ensure complete compliance with FCC requirement: Part 2 Subpart J Equipment Authorization Procedures , KDB784748 D03 v01, and KDB 997198 about importation of radio frequency devices into the United States.