BITalino R-IoT
Data Sheet

SPECIFICATIONS

> **Sampling Rate:** 200Hz
> **Analog Ports:** 2 in (A1&A2)
> **Resolution:** 12-bit (A1&A2) + 16-bit (IMU)
> **Digital Ports:** 1 in (IN) + 1 out (OUT)
> **Communication:** Wi-Fi or UART
> **Sensors:** 1 IMU 9DoF
> **Operation Voltage:** 3.3V
> **Input Voltage**: 3.3-6.0V
> **Consumption:** ~100mA

FEATURES

> Onboard Euler angles computing
> Streaming in OSC format
> WiFi connectivity for BITalino
> Arduino-like programming via Energia
> All-in-one ready-to-use design
> Raw data acquisition
> On-board battery charger
> Small form factor
> Easy-to-use

APPLICATIONS

> Human-Computer Interaction
> Biomechanics
> Biomedical projects
> Electrical engineering
> Robotics & Cybernetics
> Biofeedback

GENERAL DESCRIPTION

BITalino R-IoT embeds a 16-bit 9-axis, and onboard computation of the absolute orientation of the module in space. It has been used in a wide range of applications, including Performative Arts. The core of the BITalino R-IoT module is based upon the CC3200 chip from Texas Instruments (TI) and it is compatible with Energia, a programming tool for TI processors with the easiness of the Arduino look & feel. It a is a perfect tool to be used in combination with different biosensors in a wearable form factor. For additional information, please refer to R-IoT Manual.
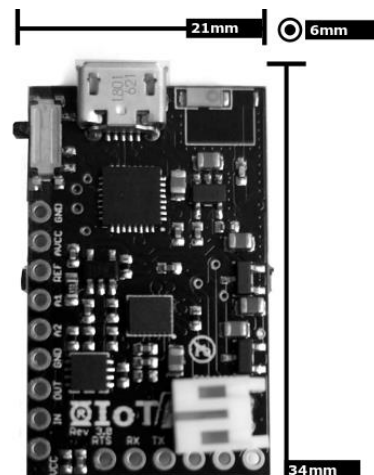

Fig. 1. Bottom image and physical dimensions.

Fig. 2. Top image.

REV A

BEWARE: DIRECT OR INDIRECT COUPLING TO THE MAINS MAY RESULT IN SHOCKING HAZARD

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HARDWARE DESCRIPTION
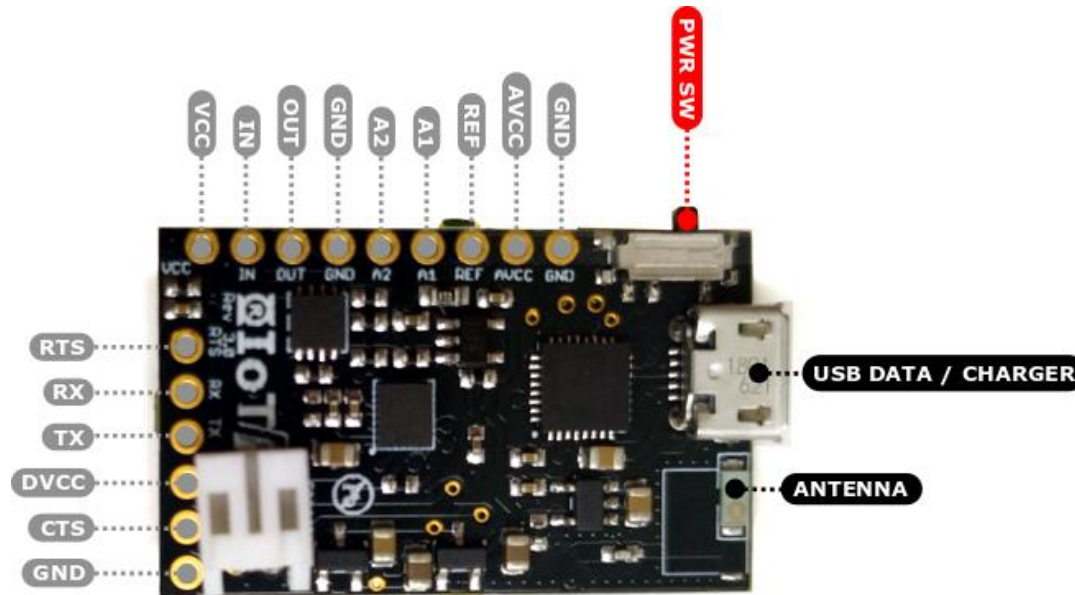

Fig. 3. Function of the buttons and LEDs .

Fig. 4. Pinout and other main components.

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PIN-OUT DESCRIPTION

Table 1. Pin attributes.

Pin	Function
A1	12-bit ADC Input (1.5V$_{Max}$) Can be selected as a "Wake-up Source"
A2	12-bit ADC Input (1.5V$_{Max}$)
AVCC	3.3V Sensors Power Source
DVCC	3.3V Digital Power Source
CTS	Not Connected
GND	
IN	Digital Input
OUT	Digital Output
REF	1.65V Isolated Reference
RTS	External Reset
RX	I2C Data
	UART RX Data
TX	I2C Clock
	UART TX Data
VCC	3.3V General Power Source

ORDERING GUIDE

Part #	Description
KIT-RIOT-WIFI-NC	BITalino R-IoT Kit includes everything you need to start working immediately
COMP-PCB-R-IoT-NC	BITalino R-IoT Barebone does not include any accessories
WEARABLE-MOTION-RIOT	Motion R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of tracking movement with a 9DoF sensor.
WEARABLE-MUSCLE-RIOT	Muscle R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of acquiring single-channel Electromyography (EMG) data in addition to motion tracking with a 9DoF sensor
WEARABLE-DERMAL-RIOT	Dermal R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of acquiring single-channel Electrodermal Activity (EDA) data in addition to motion tracking with a 9DoF sensor.
WEARABLE-RESPI-RIOT	Respi R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of acquiring single-channel Respiration (RIP) data in addition to motion tracking with a 9DoF sensor.
WEARABLE-CARDIO-RIOT-FREESTYLE	Cardio R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of acquiring single-channel Electrocardiography (ECG) data in addition to motion tracking with a 9DoF sensor. This product is coming with Pre-Gelled Self-Adhesive Disposable Ag/AgCl Electrodes (Pack: 8)
WEARABLE-CARDIO-RIOT-BAND	Cardio R-IoT is a pre-assembled wearable device based on R-IoT technology and capable of acquiring single-channel Electrocardiography (ECG) data in addition to motion tracking with a 9DoF sensor. This model is specifically designed to work with a Polar-type chest band.