Cassia Networks
The Future of Connected Things

DATA SHEET

Cassia S2000 Bluetooth Router

The Cassia S2000 brings low-cost, long range and scalable connectivity to enterprise IoT solutions. It is the industry-leading long-range Bluetooth router designed for deployments in industrial automation, health monitoring, senior safety and other enterprise IoT applications. The S2000 extends Bluetooth's range up to 1000 feet open space and enables remote control of 20 Bluetooth low energy devices without requiring any changes to the end devices.

OVERVIEW

The Cassia S2000s are deployed in industrial automation, healthcare, retail, senior safety, and many other enterprise IoT applications. It brings significant benefits to IoT connectivity: low cost, worldwide standardized, low power and long range.

The S2000's compact and cost-effective design makes it the ideal Bluetooth routing solution for indoor applications. The Cassia S2000 attaches to the ceiling or wall with an included mounting kit or can be easily placed on a desktop or counter space. The S2000 receives power from either a Micro-USB adapter or from a switch, using PoE via the uplink Ethernet port.

The S2000 is an enterprise-grade long-range Bluetooth router, extending Bluetooth's range up to 1000 feet and expanding the number of devices that can be paired and controlled up to 20 Bluetooth low energy devices. Its patented smart antenna is optimized for horizontal use. The S2000 is used as a protocol gateway, translating between the Bluetooth protocol and IP protocol. It supports Ethernet, 2.4Ghz Wi-Fi for IP backhaul. You can access and control your Bluetooth low energy devices remotely via an Internet application or a mobile App.

The Cassia Restful APIs enable the integration of proprietary Bluetooth low energy devices to the S2000 without changing the end devices. In addition, the Cassia IoT Access Controller (AC) provides easy to use device management at scale. Solution providers use the AC to deploy and manage hundreds of Cassia S2000 routers and thousands of connected devices from a single user interface.

UNIQUE BENEFITS

Seamless Bluetooth Coverage

With smart antenna and RF management technology, the S2000 delivers wall penetrating Bluetooth coverage of up to 1000 feet. Its long-range capability increases "connection density" and reduces cost, allowing solution providers to deploy seamless Bluetooth coverage indoor and out.

Remote Access and Control

The S2000 connects your Bluetooth low energy devices that are within its coverage to your LAN or Internet, assigns them into different usage, and allows them to be controlled remotely.

Easy Integration

Cassia S2000 provides a set of Restful APIs which partners can easily integrate into their native mobile app or cloud applications. They can enjoy the extended range and routing capabilities of the S2000 without making any changes to their Bluetooth end devices.

Easy Deployment and Management

The S2000 is setup and managed by the Cassia IoT AC. Administrators can quickly deploy and check the status of all Bluetooth devices in their network (routers, sensors, throughput, CPU consumption, device location, and more).

Real-time Location Tracking

Together with the Cassia AC, the S2000 tracks and reports the location of Bluetooth low energy devices within its coverage, providing geolocation data in real-time.

Support Business Data Bypass

By sending business data directly to a third-party server, organizations can bypass the Cassia AC. Currently we support MQTT protocols for bypass mode.

ADVANCED FEATURES

PROCESSOR & MEMORY

- CPU: AR9341, MIPS processor, up to 535MHz
- 64MB RAM DDR2, 16MB flash

BLUETOOTH

- BLE chip: 1 Nordic nRF52832
- Bluetooth version: 4.2 LE compliance
- LE Connections: Up to 20 connections
- Frequency: 2.400 to 2.483 GHz
- Duplex mode: time division duplex (TDD)
- Data rates: up to 1Mbps
- TX power: 0 to +18dBm, continuously adjustable: 4db step
- RX sensitivity: -105dBm
- Antenna Gain: 5dbi PEAK
- Increased broadcast capacity (x8)

WIFI (802.11 b/g/n)

- Frequency: 2.4 GHz
- Mode: WIFI client or Access Point, can switch between modes
- TX power: up to 17.5dBm
- RX sensitivity: -96 to -71dBm
- Antenna: Integrated dual band

MULTIPLE ROLES

Supports broadcaster, listener, sender and receiver roles, and can play multiple roles simultaneously.

SECURITY SERVICES

- Support Bluetooth 4.2 security standards
- Bluetooth Secure Simple Pairing (Just Works, Passkey Entry, OOB)
- Advanced 128bit AES encryption
- Password protected router Webpage
- Communication between Access Controller and Cassia router is based on DTLS1.0 over UDP
- MQTT communication between Cassia router and the broker is encrypted.
- Firmware is signed by certificate to ensure authenticity

POWER INTERFACE

- Power over Ethernet: 802.3af/at compliant source
- Micro-USB, DC 5V, 2A
- Please don’t connect both power sources at the same time

OTHER INTERFACES

- Uplink: 10/100 BASE-T Ethernet (RJ-45)
- USB 2.0
- Reset button: Factory reset
- LED lights: Wi-Fi / BT / System / Ethernet / Power

MECHANICAL

- Dimensions (with supplied mounting plate):
  - 150 mm (W) x 150 mm (L) x 62 mm (D),
  5.90” (W) x 5.90” (L) x 2.44” (D)

ENVIRONMENTAL

- Operating:
  - Temperature: 0° C to +40° C (+32° F to +104° F),
  - Humidity: 0% to 90% non-condensing
- Storage and transportation:
  - Temperature: -40° C to +70° C (-40° F to +158° F)

MOUNTING

- Mount kit to attach the router to the wall or ceiling is included

CERTIFICATION

- FCC (US), IC (Canada), CE (Europe), BQB, SRRC (China), REACH, CB

WARRANTY

- 1-year limited hardware warranty

FCC STATEMENT

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.

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.

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

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

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas 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."

The device is restricted in indoor environment only.

Canadian Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage;
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Industry Canada Statement

CAN ICES-3 (B)/NMB-3(B)