X1000 Enterprise Bluetooth Gateway
Optimized for Industrial IoT

The Cassia Networks X1000 is the most reliable long-range Bluetooth gateway for demanding and outdoor enterprise Bluetooth IoT applications. It extends Bluetooth's range up to 1000 feet and enables remote control of up to 22 Bluetooth low power devices(and 100's in broadcast mode) without requiring changes to end devices. The Cassia X1000 acts as an Internet gateway working withCassia's IoT Access Controller (AC) for easy deployment and management.

OVERVIEW

The Cassia X1000 enterprise Bluetooth gateway delivers cost-effective connectivity to demanding indoor/outdoor enterprise Bluetooth IoT environments. It supports Power over Ethernet (PoE) with power received from the uplink Ethernet port. It attaches to a pole or wall with an included mounting kit, or it can be placed on a flat space. The weather-proof, IP65-rated X1000 is ideal for manufacturing facilities, school and corporate campuses, ship yards and outdoor plant facilities.

The X1000 extends Bluetooth connectivity up to 1000 ft / 300 m in open space direct line of sight using a patented filtering and smart antenna array.
Furthermore, the range extension does not require replacing existing Bluetooth low power end devices, nor is it dependent on Bluetooth 5.0 or Mesh. In bi-directional mode, it simultaneously pairs and connects up to 22 end devices. While in broadcast mode, it listens to 100s of end devices. It can be used as a protocol gateway, which translates between Bluetooth protocol and IP protocol. The X1000 Internet Protocol (IP) backhaul options include Ethernet, 2.4GHz Wi-Fi and cellular. As a result, end devices are remotely accessible and controllable via an Internet application.

The Cassia IoT Access Controller (AC) provides easy-to-use device management at scale. The IoT AC user interface simplifies deploying and managing hundreds of Cassia X1000 gateways and thousands of connected end devices (see Figure 1 below).
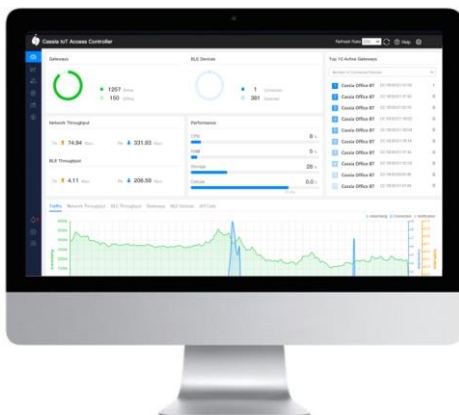

Figure 1 - Cassia IoT Access Controller (AC)

UNIQUE BENEFITS

Reliable long-range Bluetooth, Seamless Coverage
The X1000 delivers wall-penetrating Bluetooth coverage of up to 1000 ft / 300 m inopen space direct line of sight via an omnidirectional smart antenna along with radio frequency filtering and management for seamless coverage.With the highest number of end device connections per gateway, total "connection density" costs are the lowest in the industry.

Remote Access and Control
The X1000 connects to end devices, uploads the aggregated device data to the Cassia IoT AC via a LAN or the Internet, which enables remote control of the Bluetooth low power end devices.

Edge Computing
The X1000 can run an application on the gateway within a container (Linux Ubuntu OS) which provides edge benefits such as reduced latency and cloud costs as well as customized IoT application and data management.

Cost-savings, Easy Integration
Using Cassia's X1000 RESTful APIs, developers can easily integrate end devices with the X1000 and AC for native mobile apps or cloud applications. The X1000 does not require costly custom end devices or changes to existing end devices.

Easy Setup and Management
The X1000's Wi-Fi hotspot mode improves the setup experience when performing an initial installation without network access. The X1000 is managed by the Cassia IoT AC allowing administrators to quickly provision and status-check all gateways inan enterprise Bluetooth IoT network which include connected and/or identified sensors, throughput, CPU consumption, device location as well as container status.

Room-based Location Tracking
Together with the Cassia IoT AC, the X1000 tracks and reports the location of BLE devices providing real-time geolocation data.

Tx Power
Based on the country-code selected, the X1000's Bluetooth and Wi-Fi transmit power is limited to the maximum value allowed by that country.

Flexible Deployment

In network-restricted environments, the X1000 is configurable to a "Stand-Alone Mode" where data is sent directly to a local third-party application server. In a remote management situation, the X1000 in "AC Manage Mode" sends data to a remote third-party application via the Cassia IoT AC.

ADVANCED FEATURES

Processor & Memory

- CPU: 4 core ARM Cortex-A5, up to 1.5GHz
- 256MB RAM DDR3, 4GB eMMC storage

Bluetooth

- Bluetooth low power chip: 2x CSR8811
- Bluetooth version: 4.0/4.1
- Connections: Up to 22 connections
- Frequency: 2.400 to 2.483 GHz
- Data rates: up to 2x1Mbps
- Tx power: Configurable in 5~20dBm (limited by local regulatory requirements)
- Rx sensitivity: -105dBm
- Antenna Gain: 5.7dbi vertical polarized

Wi-Fi (802.11 b/g/n)

- Frequency: 2.4 GHz
- Mode: Wi-Fi client or hotspot (for setup only)
- Tx power: 12.5 to 17.5dBm
- Rx sensitivity: -96 to -71dBm
- Antenna: Omnidirectional

Multiple Roles

- Supports peripheral, central, broadcaster and observer roles, and plays multiple roles simultaneously.

Security Services

- Supports Bluetooth 4.1 security standards
- Bluetooth Secure Simple Pairing (Just Works, Passkey Entry, OOB)
- WPA2 enterprise security (PEAP-MSCHAPv2, EAP-TLS, EAP-TTLS)
- Advanced 128bit AES encryption
- Password protected gateway web console page
- Communication between the Cassia IoT AC and the gateway is based on DTLS 1.2 over UDP
- MQTT communication encryption between Cassia gateway and broker. Gateway to AC MQTT option supported
- Firmware is signed by certificate to ensure authenticity
- Supports HTTPS access to Cassia RESTful API and gateway web console
- Dedicated SSL private key and certificate import options

Additional Features

- Diagnostic tools: Ping, Traceroute, TCP dump and NetCat on gateway's console
- Configurable statistic report interval for reducing backhaul traffic between AC and gateway

Power Interface

- Power-over-Ethernet: 802.3af/at compliant source
- Power consumption: up to 2.5W for normal usage; cellular USB modem adds an additional 2.5W

Other Interfaces

- 10/100 BASE-T Ethernet (RJ-45) uplink
- Reset button
- LED lights: Power
- USB 2.0 (can be used for cellular USB modem)

Mechanical

- Dimensions:
  154 mm (D) x 259 mm (H)
  6.1-inch (D) x 10.2 inch (H)
- Weight: 800 g / 28 oz

Environmental

- Operating:
  - Temperature: -40°C to +65°C (-40°F to +149°F)
  - Humidity: 0% to 90% non-condensing
- Storage and transportation:
  - Temperature: -50°C to +70°C (-58°F to +158°F)
- Wind resistance:
  - Up to 85-MPH sustained winds
  - Up to 135-MPH wind gusts
- IP rating: IP65

Mounting

- Wall or pole mounting kit included

Certification

- FCC (US), IC (Canada), CE (Europe), BQB, TELEC (Japan), CB, CRC (Colombia), SRRC (China), RoHS, China RoHS, REACH, ICASA & NRCS (South Africa), ANATEL (Brazil), RCM (Australia & New Zealand), SUBTEL (Chile), NCC & BSMI (Taiwan)

Warranty

- 1-year limited hardware warranty