

ATX2000 Hazardous Area Bluetooth Gateway

(Optimized for Industrial IoT Hazardous Areas)

OVERVIEW

The Cassia Networks™ ATX2000 is a long-range Bluetooth gateway optimized for industrial IoT hazardous areas. It features an IP66 and NEMA 4 rated ruggedized enclosure uniquely designed for Zone 2, 22 and Division 2 hazardous areas. The ATX2000 features an integrated TPM chip, more power/Wi-Fi/antenna options, larger RAM, and supports Bluetooth Low Energy (BLE) 5.0. It extends Bluetooth's range up to 1 kilometer and enables remote control of up to 40 Bluetooth Low Energy devices (and hundreds in broadcast mode) without requiring any changes to end devices. The ATX2000 acts as an Internet Gateway in conjunction with Cassia's IoT Access Controller (AC) for easy deployment and management.

The Cassia ATX2000 hazardous area Bluetooth gateway delivers cost-effective connectivity for demanding indoor/outdoor Bluetooth IoT environments. It supports Power over Ethernet (PoE), AC and DC power sources. The all weather-proof, IP66 and NEMA 4 rated ATX2000 gateway is ideal for hazardous manufacturing and plant facilities and is fully certified for all hazardous areas.

The ATX2000 extends Bluetooth connectivity up to 400 meters for Bluetooth 4 and 1 kilometer for Bluetooth 5 in open space direct line of sight. Furthermore, the range extension does not require replacing existing Bluetooth low power end devices, nor is it dependent on Bluetooth Mesh. In bi-directional mode, the ATX2000 can pair and connect up to 40 end devices. While in broadcast/advertising mode, it can listen to hundreds of end devices. Cassia's ATX2000 can be used as a protocol gateway, which translates between Bluetooth protocol and IP protocol. The ATX2000 Internet Protocol (IP) backhaul options include Ethernet, 2.4/5GHz Wi-Fi and USB cellular modem. As a result, end devices are remotely accessible and controllable via an Internet application.

The Cassia IoT Access Controller (AC) provides an easy-to-use device management platform. The IoT AC user interface simplifies the deployment and management of thousands of Cassia ATX2000 gateways and connected end devices (see Figure 1 below).



Figure 1 - Cassia IoT Access Controller (AC)



UNIQUE BENEFITS

Reliable Long-Range Bluetooth, Seamless Coverage

The ATX2000 gateway delivers Bluetooth coverage of up to 400 meters with Bluetooth 4 or 1 kilometer with Bluetooth 5 in open space direct line of sight via the radio frequency filtering and management technology for seamless coverage.

IP66 & NEMA 4 Rated Enclosure

The ATX2000 gateway features an IP66 and NEMA 4 rated ruggedized enclosure to withstand harsh environments and is fully certified for Zone 2, 22 and Division 2 hazardous areas.

Remote Access and Control

The ATX2000 gateway connects to end devices and uploads the aggregated device data to the Cassia IoT AC via a LAN or the Internet, which enables remote control of BLE end devices.

Edge Computing

The ATX2000 can run applications within a container (Linux Ubuntu OS) which provides edge benefits such as reduced latency and cloud costs as well as customized IoT applications and data management.

Cost-Savings and Easy Integration

Using Cassia's RESTful APIs, developers can easily integrate end devices with the ATX2000 and AC for native mobile apps or cloud applications. The ATX2000 does not require costly custom end devices or any changes to existing end devices. In addition, with a high number of end connections per gateway, enterprises benefit from significantly reduced deployment and equipment costs.

Easy Setup and Management

The ATX2000's Wi-Fi hotspot mode improves the setup experience when performing an initial installation without network access. The ATX2000 is managed by the Cassia IoT AC allowing administrators to quickly provision and check the status of all gateways in an enterprise Bluetooth IoT network.

Bluetooth Location Tracking

Together with the Cassia IoT AC, the ATX2000 tracks and reports the location of BLE devices providing real-time geolocation data. It is also ideal for personnel and asset tracking applications.

Bluetooth Roaming

Cassia's patented Bluetooth Roaming technology allows the seamless authentication and mobility of Bluetooth devices from one Cassia gateway to another.

Flexible Deployment

In network-restricted environments, the ATX2000 gateway is configurable to a "Stand-Alone Mode" where data is sent directly to a local application server. In a remote management situation, the ATX2000 in "AC Manage Mode" sends data to a remote application server via the Cassia IoT AC.

TECHNICAL SPECIFICATIONS

Hazardous Area Certifications & Ratings

- IP rating: IP66
- NEMA rating: NEMA 4
- NA (MET), EU (ATEX), Japan (CML), and Global (IECEX)
 - II 3 (3) G Ex ec [ic Gc] nR IIC T6 Gc
 - D Ex [ic Dc] tc IIIC T85°C Dc
 - cMETus Class I, Div 2, Groups A - D
 - Class II, Div 2, Groups F - G
 - cMETus Class I, Zone 2 AEx ec ic nR IIC T6 Gc
 - Class II, Zone 22 AEx ec ic tc IIIC T85°C Dc
 - 40°C ≤ Tamb ≤ 60°C
- Note: once the unit is assembled at an authorized manufacturing plant/facility, the enclosure does not require re-certification (unless opened)

Radio Certifications

- FCC (US), NRTL (US), IC (Canada), CE (Europe), SRRC (China), China RoHS, CB, RoHS, REACH, RCM (Australia & New Zealand), TELEC (Japan), BQB, CRC (Colombia), NCC & BSMI (Taiwan), ANATEL (Brazil), ICASA & NRCS (South Africa), SUBTEL (Chile), IMDA (Singapore), SIRIM (Malaysia), NRTA (Egypt), IFT & NYCE (Mexico), PTA (Pakistan), EANCOM (Argentina)

Processor & Memory

- RAM: 1GB DDR3 (approximately 700MB for container)
- CPU: 4 core ARM Cortex-A5, up to 1.5GHz
- Storage: 4GB eMMC

Bluetooth

- Bluetooth low power chip: 2x nRF52840
- Connections: Up to 40 connections
- Data rates: up to 2x2Mbps
- Rx sensitivity: -105dBm
- Version: Bluetooth Low Energy 4.0/4.1/4.2/5.0
- Frequency: 2.400 to 2.483 GHz
- Tx power: configurable in 3~19dBm (limited by local regulatory requirements)
- Antenna: default is 6dbi Omni-directional. For other antenna requirements, please contact Cassia.

Wi-Fi (802.11 a/b/g/n/ac)

- Frequency: 2.4GHz and 5GHz ISM band
- Mode: Wi-Fi client or hotspot (for setup only)
- Tx power:
 - 12.5 to 17.5dBm for 2.4GHz
 - 8.5 to 15.5dBm for 5GHz
- Rx sensitivity:
 - 96 to -71dBm for 2.4GHz band
 - 91 to -71dBm for 5GHz band depending on modulation

- Antenna: default is 6dbi Omni-directional. For other antenna requirements, please contact Cassia.

Multiple Roles

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

Security Services

- TPM (Trusted Platform Module) chip based security
- Bluetooth Secure Simple Pairing (Just Works, Passkey Entry, Legacy OOB, Secure OOB, Numeric Comparison)
- Advanced 128bit AES encryption
- Communication between gateway and AC is based on TLS 1.2 (MQTT) or DTLS 1.2 (CAPWAP)
- Supports HTTPS access to Cassia RESTful API and gateway web console
- Supports Bluetooth 4.2 security standards
- WPA2 enterprise security (PEAP-MSCHAPv2, EAP-TLS, EAP-TTLS)
- Password protected gateway web console page
- Firmware is signed by certificate to ensure authenticity
- Dedicated SSL private key and certificate import options

Power Interface

- PoE /POE+ IEEE802.3af/at on RJ45 or Weidmuller 8-way wired connector and AC or DC power input via Phoenix socket

Output Connections

- 3 galvanically isolated, intrinsically safe external RF outputs for BLE and Wi-Fi via external N-type RF connectors
- 2 additional RF outputs will be provided if the cellular backhaul option is chosen
- Internal surge arrestors are optional

Network Connections

- 10/100/BASE-T Ethernet on CAT6: up to 100m
- 1000BASE-LX Multi mode fibre: up to 2km, wavelength 1310nm
- 1000BASE-LX Single mode: fibre: up to 10km, wavelength 1310nm
- Cellular: 4G-LTE

Environmental

- Operating:
 - Temperature: -40°C to +60°C (-40°F to +140°F)
 - Humidity: 0% to 95%, non-condensing
- Storage and transportation:
 - Temperature: -50°C to +70°C (-58°F to +158°F)
- Enclosure material:
 - Marine grade copper-free aluminum alloy, epoxy powder coated

Mechanical

- Dimensions:
 - 328 mm (H) x 389 mm (W) x 221 mm (D)
 - 12.9 inch (H) x 15.3 inch (W) x 8.7 inch (D)
- Weight:
 - up to 10 kg / 353 oz (different configuration)

Warranty

- 1-year limited, replacement hardware warranty