The BitEngine from BitBoxUSA offers a central cloud commissioning, data aggregation and rationalization engine to eliminate the complex task of collecting and controlling disjointed data from facility infrastructure. Coupled with the BitBox IOT Gateway, enterprises with a vast number of locations can manage and centralize all facility data from a global footprint of sites into a single organized dataset allowing a "single source of truth."

The BitEngine allows for rapid, web-based, remote provisioning of BitBox IoT Gateways and setup of remote acquisition streams including protocols and subsystem connections on each site. Data objects from streams can then be tagged and organized into consolidated enterprise data collections to an organization's goals and data needs.

Enterprise data collections can be stored directly in the BitEngine for simplicity, or optionally can be stored in popular cloud services such as Azure, GCP, Digital Ocean, or AWS. Additionally, collections can be brought into in-house I.T. infrastructure.

The cloud-based enterprise data collection driven by the BitEngine can be securely accessed and queried via the RESTful BitAPI allowing 3rd party data analytics, visualization or application development to meet an array of business needs including, but not limited to:

- Energy reporting
- Outlier detection
- Marketing analytics
- Sustainability management
- Factory automation analysis
- Unmanned remote facility monitoring

FACILITY IOT DATA COLLECTION
Local Data Acquisition

- Rest API, Modbus RTU / TCP, SNMP, MySQL, BACnet MS/TP & IP, Serial RS232/422/485

WAN Data Collection

- WiFi
- Ethernet
- 4G

- Multiple connections to provide redundant fallback security

Analytics & Cloud Services

- Facility Management & Alarming
- AWS, Azure & GCP
- Mobile Applications
- User Interface Software
- Logistics
- Work Order Management
- Cloud Applications
- Operational Technology
FEATURES AT A GLANCE

Provision, Organize and access everything from one place

- Web-based provisioning, monitoring, and management of Edge-based BitBox IoT Gateways
- Data tagging using Haystack or in-house schemes to organize inbound data sources into an enterprise relevant format
- Store data collections in the BitEngine or optionally port to Azure, GCP, AWS or in-house I.T. systems.
- RESTful Secure BitAPI for data acquisition from bitEngine for third party data usage
- Low total cost of ownership based on the number of BitBrokers, not data throughput.
- Clear ownership of data by the enterprise.
- Secure encrypted data path from BitBox Edge devices through BitAPI.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Part number</th>
<th>BE200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Ecosystem</td>
<td>DigitalOcean</td>
</tr>
<tr>
<td>Partner</td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td>99.99% Uptime</td>
</tr>
<tr>
<td>Data Storage</td>
<td>BitEngine - Unlimited for BitBox Edge Gateway provided data. Third party native integration with Azure, GCP, DigitalOcean, and AWS based on service pricing.</td>
</tr>
<tr>
<td>Cloud IU / Configuration Tooling</td>
<td>HTML5 Compliant Browser Compatible</td>
</tr>
<tr>
<td>Edge/Inbound Communications</td>
<td>[BitBox IoT Gateway tunneled WebSockets over TLS/SSL Connection. Single TCP Port connectivity]. Additional data streams directly to bitEngine available via Restful connections.*</td>
</tr>
<tr>
<td>Outbound Communications</td>
<td>BitAPI - REST Interface [JSON file export] [RPC**]</td>
</tr>
<tr>
<td>Security</td>
<td>[HTTP over TLS v1.3 (HTTPS)] [WebSockets Secure (WSS) v13] [x25519 &amp; x488 key protocols] [Ed25519 &amp; Ed448 digital signature]</td>
</tr>
<tr>
<td>Tagging Methodology</td>
<td>Custom Configurable data tagging [Haystack]</td>
</tr>
<tr>
<td>Applicability</td>
<td>Edge Data Center Management Retail location Analytics Property Management QSR Analytics Manufacturing Process Data Distribution Center Operation</td>
</tr>
<tr>
<td>3rd Party Application Support</td>
<td>See bitboxusa.com</td>
</tr>
</tbody>
</table>

* Additional Data Storage fee may apply
** Custom development costs apply