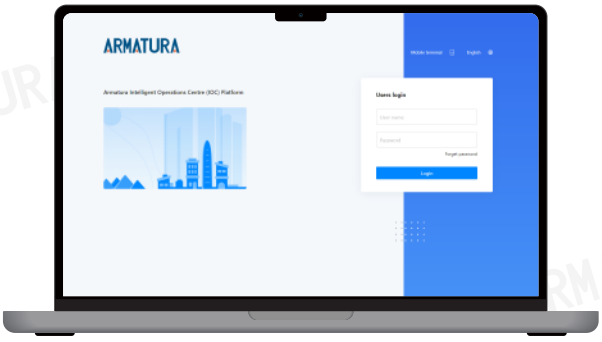
ARMATURA

ARMATURA IOC

Armatura Intelligent Operations Centre (IOC) Platform

The Future of Building Operations with AI and Digital Twins



Armatura is at the forefront of technological innovation with the launch of its Intelligent Operation Centre (IOC) platform, a robust decision-making support system designed to revolutionize the management and monitoring of facilities and services. Our IOC platform is engineered to support dynamic and complex operational needs through real-time monitoring, advanced analytics, and seamless integration with existing systems.

- Digital Twin Dashboard
- Operational Dashboard
- Strategic Dashboard
- BMS Integration
- Work Order Center
- Workflow Management
- Energy Usage Analytics
- Intelligent Video Analytics
- Event Center
- Facility Center
- Notification Center
- Asset Management
- Visitor Management
- Flexible Reporting

At the core of the IOC platform is a state-of-the-art decision support system that enhances real-time property monitoring through an intuitive 3D map interface. This advanced visualization tool, combined with AI analytics, allows users to gain a comprehensive understanding of their environments, enhancing both situational awareness and operational efficiency.

The IOC platform seamlessly integrates with Building Management Systems (BMS), Internet of Things (IoT) devices, and security platforms, establishing a cohesive and interoperable network. This integration capability ensures that our platform can connect with systems and devices across different protocols, enhancing flexibility and scalability.

Digital Twin Data Visualization

Based on 3D rendering technology and support on Building Information Modeling (BIM), IOC presents building complex environments, interior layouts of buildings, facility structures, and process workflows in a comprehensive, high-precision, and ultra-realistic manner. enhancing user visual perception and improving interactive experiences.

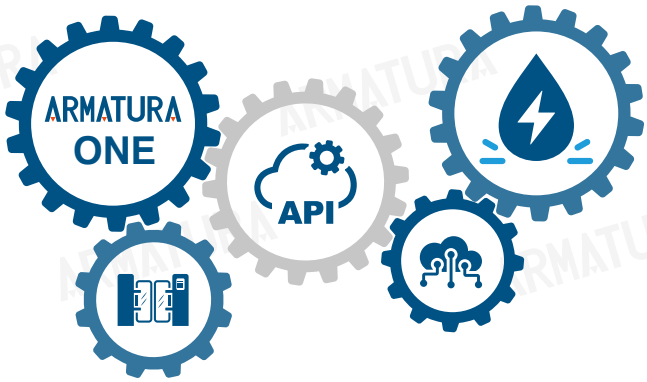
Through Digital Twin technology, IOC integrates data into the 3D rendered scenes, allowing users to intuitively grasp the operational situation, rapidly and accurately locate alarm occurrences or even address impending incidents in the campus.

Building Management System (BMS) Integration

Seamless integration with different BMS platforms through BACNet, OPC, Modbus protocols enables IOC for data integration and comprehensive supervision on every aspect inside buildings.

Open for 3rd Party Integration

IOC supports a series of industrial standard protocols and APIs across multiple fields such as: Elevator Control, Physical Security, Asset management, etc. to achieve easy and low-cost integration with mainstream hard- and software in the market.

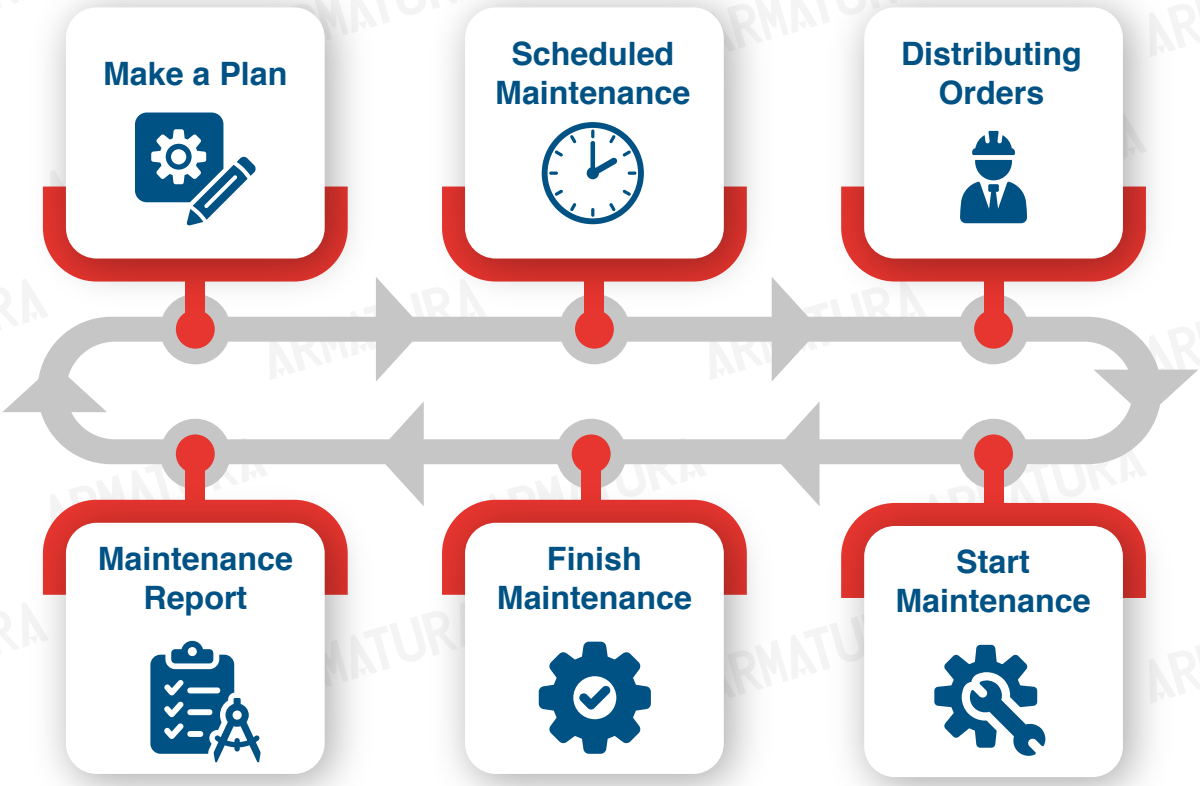


Flexible Workflow Management

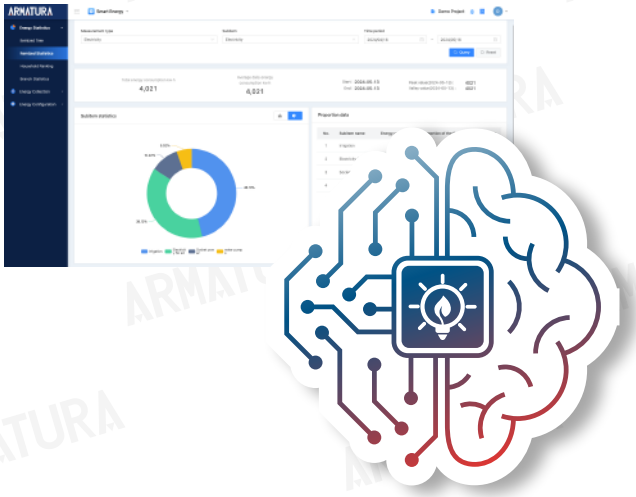
Develop and automate Standard Operating Procedures (SOPs) via IOC to ensure consistent and efficient response is delivered under special situations (e.g. emergency). IOC also creates a historical, electronic record of actions taken during SOP execution for effective post-situational review and analysis.

Facility & Device Management and Monitoring

Monitors the status of all connected devices in real-time, gathers all critical data input and transforms them into meaningful insights presented on digital dashboards for administrative reviews. IOC also allows user to design, automate, execute a preventive maintenance plan on facilities and devices.



ARMATURA



AI-Powered Energy Saving Recommendations

IOC provides a holistic and real-time display on energy usage on components such as Heating, ventilation, and air conditioning (HVAC), helping managers to understand the energy consumption situation and optimize energy usage by offering actionable recommendations.

Powerful Notification Centre

Aggregates notifications from all connected systems and devices into a central broadcasting platform. This feature supports a variety of communication tools such as WhatsApp, LINE, Amazon SNS, SMS, and email, also includes advanced filtering to avoid inefficient notifications.

Cross-Platform Linkage

Integrated with multiple systems and devices, IOC supports cross systems communication and interactions by a set of built-in linkage rules which enables automated collaboration between systems to enhance work efficiency.

Real-Time KPIs & User Collaboration Tools

Provides real-time performance indicators and enables user collaboration, allowing issues to be reported and resolution statuses to be checked directly from mobile devices.

Scalability

Capable of real-time monitoring over 10 million devices and managing more than 10,000 concurrent linkages and can manage multiple projects under a single server or extend to multi-server setups.

ARMATURA

Operating System	
Server-Side OS	CentOS 7.x Ubuntu LTS
Suggested Browser for Client-Side	Chrome: Version 60.0 or later Edge: Version 79 or later Firefox: Version 115 or later
Support OS for mobile	iOS 9.x or later Android 8.x or later
Database	MySQL 5.7x(RDB) InfluxDB 1.8.x(TSDB)
Maximum Supported Devices	1,000,000
Device Data Collection Frequency	1 second to 10 minutes (configurable)
Max. Concurrent Users (simultaneously)	3,000
Maximum Supported Personnel	1,000,000

3rd-Party Integration	
Notification / Messages	SMS / Email / WhatsApp / Line / Amazon SNS / 3rd-party APP Client / 3rd-party Web Client
Digital Map	Google Map
3D Map	Support 3D-modeling formats FBX, OBJ, GLB, GLTF, STL Support BIM file formats: RVT, FBX, SKP, DGN, NWD, 3D Tiles. Support web browser-based 3D graphics rendering technologies: WebGL-Three.js, Unity3D, UE4, UE5
Microsoft Active Directory	No version restriction
Building Automation System	Honeywell, Johnson Control, Invensys, Siemens, Delta
Building Management System	Honeywell, Johnson Control, Invensys, Siemens, Delta
Fire Alarm and Detection System	Edwards, Siemens, GST
Low-voltage Electrical Distribution Systems	Schneider

ARMATURA

3rd-Party Integration	
Elevator Destination Control System	Hitachi, Mitsubishi Electric, Kone
Access Control System	Armatura, ZKTeco, DDS Security
Parking Management System	Armatura, ZKTeco, Gmatrix
Video Management System	Uniview, Tiandy, Milestone, Honeywell, ZKTeco, Armatura
Lighting Control System	ABB, Siemens, Schneider, Honeywell, Delta
Power Metering and Energy Monitoring Systems	ABB, Siemens, Schneider, Rockwell
Environmental Monitoring Sensors	Siemens, Honeywell, Johnson Control, Schneider
API	IoT Metadata Query Interface RESTful API IoT Timing Data Query Interface RESTful API Device Control (Downlink Command) Interface RESTful API Device control (Uplink Message) Query Interface RESTful API Device Status Query Interface RESTful API Device Information Query Interface RESTful API Personnel Information Query InterfaceRESTful API Spatial Information Query Interface RESTful API Querying Meter Readings Interface RESTful API Querying Energy Consumption Statistics RESTful API Alarm Message Query Interface RESTful API Pedestrian Records Query Interface RESTful API Vehicle Records Query Interface RESTful API Visitor Records Query Interface RESTful API

Data Protection	
Data Protection	HTTPS (Hypertext Transfer Protocol Secure), SSL (Secure Sockets Layer), TLS 1.3 (Transport Layer Security)
Certification	ISO9001:2015, ISO14001:2015, ISO27001:2013, ISO20000-1:2018, ISO45001:2018, CMMI-DEV ML5、PCMM ML3, ITSS, GDPR Compliance

Minimum Server Hardware Requirements For Lite Project	
Application Scenarios	Single-block building, building complex, IoT devices within 5,000, security cameras within 300, max. 16-channel concurrent video play, small-scale 3D model, normal 3D rendering, single-point deployment
Server Quantity	Server 1: Application, Video Trancode Platform, IoT Platform Server 2: RDB+TSDB+Digital Twin Platform
User Capacity	< 200 users

ARMATURA

Minimum Server Hardware Requirements For Lite Project	
Recommended Database	MySQL 5.7.x(RDB) InfluxDB 1.8.x(TSDB)
Server OS	CentOS 7.x Ubuntu LTS
Screen Resolution	Basic Requirement: 1920*1080P or higher
Ethernet	NIC (Network Interface Card) 1000Mbps or Gigabit Ethernet or higher spec
RAM	Server 1, 64GB DDR4 Server 2, 32GB DDR4
CPU	Server 1: Intel(R) Core(TM) i5 11th Gen series or above 32 Core processor with speed of 2.5GHz or above Server 2: Intel(R) Core(TM) i5 11th Gen series or above 16 Core processor with speed of 2.5GHz or above
ROM	Server 1: 500GB free space or larger (not include video storage) Server 2: 2TB free space or larger (depends on IoT data collection frequency data storage timespan)
Graphic Card (optional)	Support WebGL 3D (not required for server)

Minimum Server Hardware Requirements For Professional Project	
Application Scenarios	Building complex, IoT devices within 20,000, security cameras within 2000, max. 16-channel concurrent video play, medium to large-scale 3D model, normal 3D rendering, single-point deployment
Server Quantity	Server 1: Application, Video Transcode Platform Server 2: IoT Platform Server 3: RDB+TSDB Server 4: Digital Twin Platform
User Capacity	< 1,000 users
Recommended Database	MySQL 5.7.x(RDB) InfluxDB 1.8.x(TSDB)
Server OS	CentOS 7.x Ubuntu LTS
Screen Resolution	Basic Requirement: 1920*1080P or higher
Ethernet	NIC (Network Interface Card) 1000Mbps or Gigabit Ethernet or higher spec

ARMATURA

Minimum Server Hardware Requirements For Professional Project	
RAM	Server 1: 64GB DDR4 Server 2: 32GB DDR4 Server 3: 16GB DDR4 Server 4: 16GB DDR4
CPU	Server 1: Intel(R) Core(TM) i5 11th Gen series or above 32 Core processor with speed of 2.5GHz or above Server 2: Intel(R) Core(TM) i5 11th Gen series or above 16 Core processor with speed of 2.5GHz or above Server 3: Intel(R) Core(TM) i5 11th Gen series or above 16 Core processor with speed of 2.5GHz or above Server 4: Intel(R) Core(TM) i5 11th Gen series or above 16 Core processor with speed of 2.5GHz or above
ROM	Server 1: 500GB free space or larger (no include video storage) Server 2: 500GB free space or larger Server 3: 2TB free space or larger (depends on IoT data collection frequency data storage timespan) Server 4: 500GB free space or larger
Graphic Card (optional)	Support WebGL 3D (not required for server)

Minimum Server Hardware Requirements For Enterprise Project	
Application Scenarios (Enterprise Project)	Multiple building complex, IoT devices within 100,000, security cameras within 10,000, max. 32-channel concurrent video play, multiple 3D models, normal 3D rendering, single-point deployment
Server Quantity	Server 1: Application Server 2: Video Transcode Platform Server 3: IoT Platform Server 4: IoT Edge Server Server 5: RDB+TSDB Server 6: Digital Twin Platform
User Capacity	< 10,000 users
Recommended Database	MySQL 5.7.x(RDB) InfluxDB 1.8.x(TSDB)
Server OS	CentOS 7.x Ubuntu LTS
Screen Resolution	Basic Requirement: 1920*1080P or higher
Ethernet	NIC (Network Interface Card) 1000Mbps or Gigabit Ethernet or higher spec

ARMATURA

Minimum Server Hardware Requirements For Enterprise Project

RAM	Server 1: 32GB DDR4 Server 2: 64GB DDR4 Server 3: 32GB DDR4 Server 4: 32GB DDR4 Server 5: 32GB DDR4 Server 6: 64GB DDR4
CPU	Server 1: Intel(R) Core(TM) i7 11th Gen series or above 32 Core processor with speed of 2.5GHz or above Server 2: Intel(R) Core(TM) i7 11th Gen series or above 32 Core processor with speed of 2.5GHz or above Server 3: Intel(R) Core(TM) i7 11th Gen series or above 32 Core processor with speed of 2.5GHz or above Server 4: Intel(R) Core(TM) i7 11th Gen series or above 16 Core processor with speed of 2.5GHz or above Server 5: Intel(R) Core(TM) i7 11th Gen series or above 16 Core processor with speed of 2.5GHz or above Server 6: Intel(R) Core(TM) i7 11th Gen series or above 32 Core processor with speed of 2.5GHz or above
ROM	Server 1: 500GB free space or larger Server 2: 1TB free space or larger (not include video storage) Server 3: 500GB free space or larger Server 4: 500GB free space or larger Server 5: 4TB free space or larger (depends on IoT data collection frequency data storage timespan) Server 6: 500GB free space or larger
Graphic Card (optional)	Support WebGL 3D (not required for server)

ARMATURA

Address:190 Bluegrass Valley Parkway, Alpharetta, GA 30005
Phone: + 1 (470) 816-1970
Email: sales@armatura.us
Website: www.armatura.us