Business

SAMSUNG

The future of building systems is AI

Integrated Solution for Buildings

2024 Catalogue

Solution connecting us to the future

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As of Nov. 2024

The future of building systems is AI

Integrated Solution for Buildings

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Solutions connecting us to the future
Here. Now.

We spend most of our time inside buildings—
working, eating, and resting.
Given how much of our daily lives takes place indoors,
buildings demand a significant amount of energy.

We need a solution that can utilize limited resources more efficiently,
make things less complicated, enrich our complex lives,
and ultimately enhance our safety.
This is the solution for buildings that we need.

This will be made possible through AI technology.
Devices and sensors installed throughout the building
collect necessary data by connecting with each other.
AI technology, based on this accumulated data,
will provide a comfortable living environment for people and
make buildings more efficient.

Buildings that enrich our lives even further -
Samsung b.IoT envisions such buildings for the future.

b.IoT

Modern building management systems are shifting toward enhancing efficiency and optimizing operations within buildings. Samsung b.IoT delivers an ideal building solution that improves asset value by providing a comfortable indoor environment and operational efficiency, satisfying the diverse needs of building occupants and operators.

Solution configuration

Samsung b.IoT offers configurations tailored to building scale, building control systems, and the scope of integrated operations, allowing selection of a building control system that is perfect for any building.
Experience a comfortable indoor environment and ease of energy savings and operations with Samsung's HVAC products and advanced integrated management solutions designed to meet a variety of requirements of different spaces.

b.IoT Enterprise
b.IoT Standard

Integrated building solution

An integrated building solution that consolidates major products such as mechanical equipment, lighting, and power into one system. Combined with Samsung's proprietary HVAC energy-saving solutions, it enhances operational convenience and reduces energy costs.

b.IoT Lite

Centralized control solution for VRF

A centralized control system optimized for Samsung VRF systems, reducing energy costs for cooling and enhancing ease of operation.

b.IoT Energy

Remote monitoring solution for zero energy building

A solution provided as an add-on to b.IoT Enterprise/Standard/Lite, allowing the collection, retrieval, analysis, and monitoring of building energy data. It supports energy management functions for buildings seeking Korean zero energy building certification.

Size \ Purpose	Elementary and secondary schools	Universities	Offices / Buildings	Factories / Plants
Large-size (15,000 m² and above)	b.IoT Enterprise / Standard + b.IoT Energy			
Mid-to-Large-size (Up to 15,000 m²)	b.IoT Enterprise / Standard + b.IoT Energy			
Small-to-Mid-size (Up to 3,000 m²)	b.IoT Lite + b.IoT Energy			

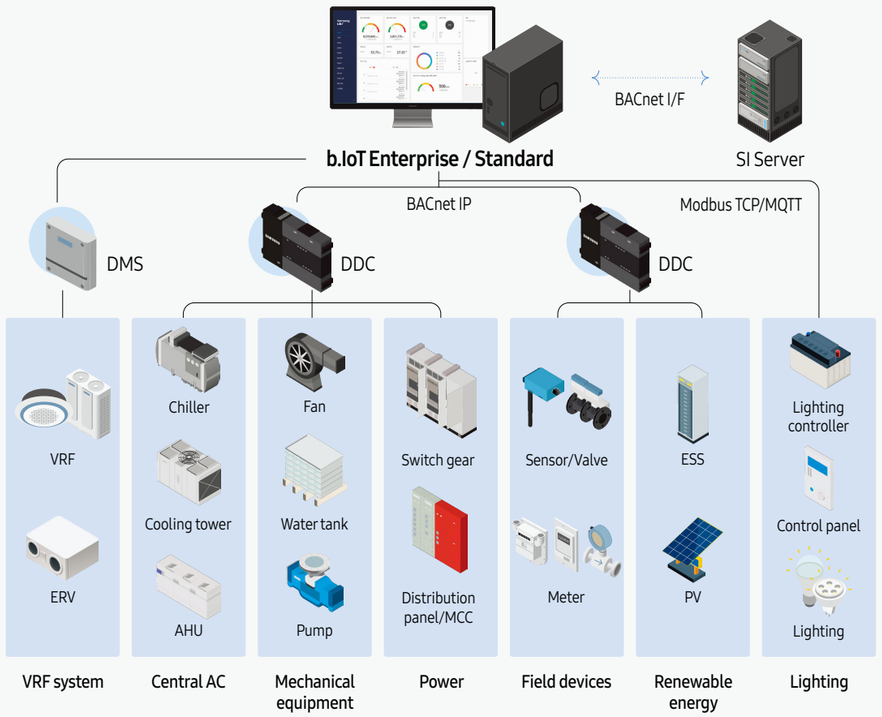
b.IoT Enterprise / Standard

Efficiently integrates major building equipment and systems for centralized operation.

Key features of the solution

- Integrated control of mechanical equipment
- Energy optimization for air conditioning
- Indoor environment monitoring
- Operational history management
- Control authority management

Solution configuration



- VRF: Variable Refrigerant Flow

Enhanced control interface

· Dashboard (Integrated monitoring)

Provides a customizable dashboard tailored to user preferences.
You can conveniently manage key metrics by combining data cards from over 20 types of operational status information.

- Manage key metrics conveniently by combining data cards from over 20 types of operational status information.

Real-time alerts and alarms

Alerts for Samsung VRF failures and maintenance, communication error notifications and warnings, inefficient operation warnings

Detection of energy waste in indoor units

Identifies potential energy waste, such as indoor units people forgot to turn off or abnormal temperature settings.

Energy consumption status

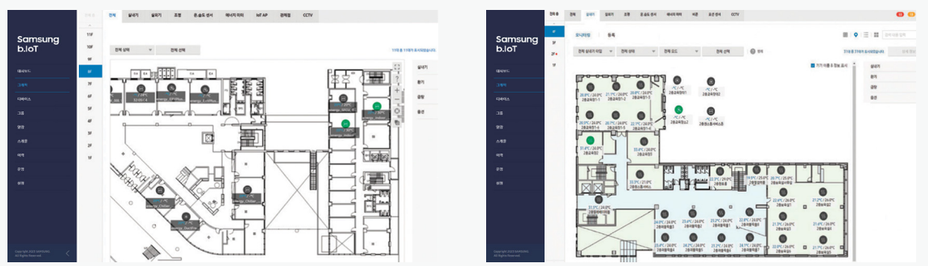
Today's energy consumption (gas, electricity, water), alerts for energy consumption compared to monthly targets

Indoor air quality of the building

Summary of the building's indoor air quality status through the air purification filters of the Samsung VRF

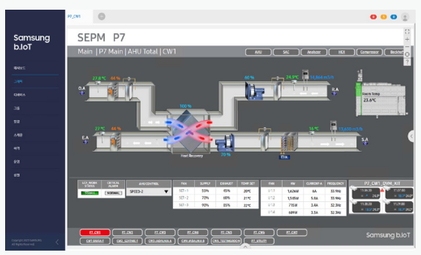
· Floor plan-based device control

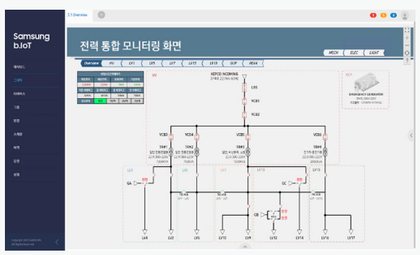
Enables device placement and zone creation/management based on the building's floor plan.
Samsung VRF indoor units can be easily configured with drag-and-drop settings, simplifying engineering tasks.

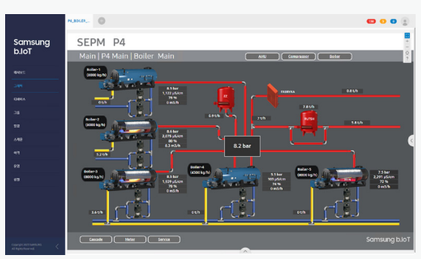


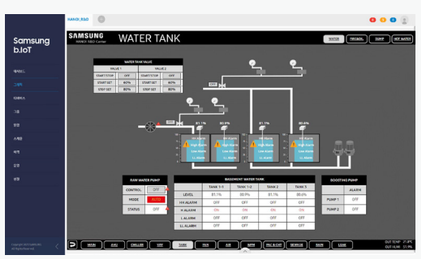
· Customized operational graphics (Mechanical equipment, lighting, power)

Provides a graphic tool that can be directly customized to meet on-site requirements.
In addition to default images, users can upload and use customized images.









Operational history management and reports

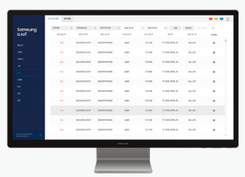
Provides flexible generation of alarm history outputs, data trends, and operational reports, allowing detailed and efficient management of operational records.

Data trend log

Records changes in device operational data.
Allows users to visually review operational history through charts.

Alarm history management

Manages alarm history and detailed information for devices that have triggered alarms.

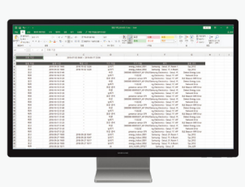


Operational report generation

Generates daily, weekly, or monthly reports of device operational history. Enables reports in site-customized templates.

Export alarm history to Excel

Saved alarm history can be exported as Excel files, making report creation easy.



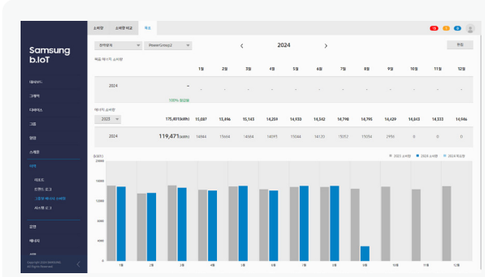
Energy consumption management

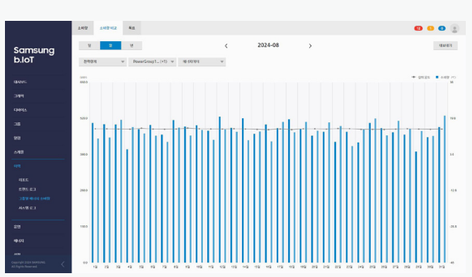
· Target-based energy consumption control

Monitor energy consumption by device using meters, enabling monthly/yearly comparisons and target-based management for convenient energy control.

· Energy consumption comparison

Easily view and compare the building's energy consumption for electricity, gas, water, and other utilities.



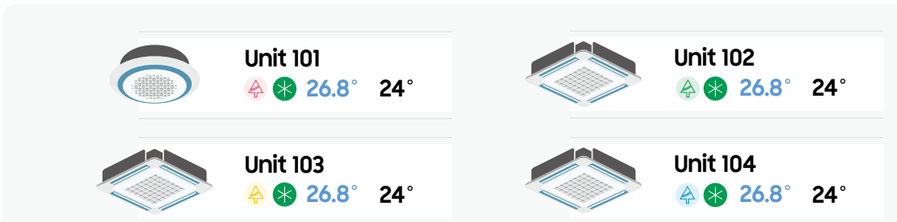


Indoor environment monitoring

Seamlessly integrates with Samsung air purification panels, enabling effective management of indoor air quality.

· Indoor air quality monitoring (When integrated with air purification panels)

b.IoT indoor unit control icons



Samsung VRF air purification panels

360 Cassette

WindFree
4-Way Cassette

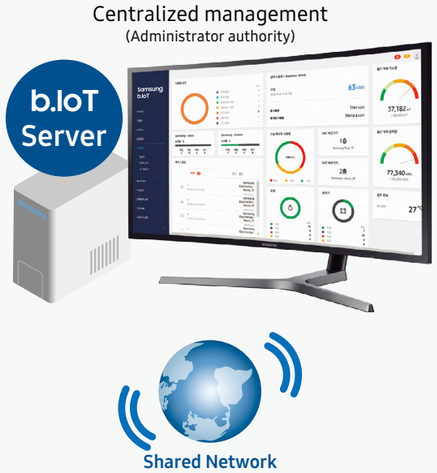
4-Way Cassette

WindFree
1-Way

* Available in indoor units with NASA protocol (new protocol) only.

Control zone settings and account permission management

Connected devices can be managed by dividing zones into buildings, floors, and areas.
By creating multiple admin accounts, multiple administrators can be authorized, and permissions can be set separately for each building, enabling efficient management.



3rd Party scalability

BACnet Server / Client support

Enables monitoring of the status of upper-tier third-party systems and lower-tier controllers /field devices through the BACnet/IP protocol.

* BTL-certified (B-OWS)

Modbus Client support

Allows monitoring of the status of lower-tier controllers/field devices using the Modbus/TCP protocol.

Solution specifications

Model name		Standard	Enterprise
		AST-BS1A	AST-BE1A
Number of points per license		500 point	5,000 point
Protocol		BACnet IP (Server / Client), Modbus TCP (Client), MQTT	
System integration	Integration scope	HVAC, power, lighting	
	Integrated DB	Supported	
	Integrated UI screen	Operates multiple unit systems on a single screen	
Scalability	Number of client connections	100 Client	
	Connectable controllers	DMS, Smart controller, 3rd Party devices	
	Number of connections	Controller and device connection counts vary depending on control points * 1 DMS = 1 Point, 1 Indoor Unit = 1 Point, 1 Outdoor Unit = 1 Point, AI/AO/DI/DO = 1 Point Each, BACnet 1 Object = 1 Point	
	Maximum control points	70,000 Point	
Certification		BTL (B-OWS)	

Hardware requirements

Category	Specifications	
	Standard	Enterprise
CPU	Intel i7/Ultra 7 or higher	2.5 GHz (Intel Xeon Octa-Core Processor) or higher
RAM	Minimum 16 GB	Minimum 16 GB (Recommended: 32 GB)
Hard disk	1 TB or larger HDD or SSD	2 TB or larger HDD or SSD (Recommended)
	* If the system is equipped with two or more hard drives, one drive with a capacity of at least 1 TB or 2 TB must be designated as the C: drive and used for installing the b.IoT Enterprise/Standard and operating systems.	
Display	1920 × 1080 (FHD) resolution	
LAN card	10/100/1000 Base-T (RJ-45 connector)	

* Hardware specifications may vary depending on the number of points. Please contact us for details.

OS requirements

Category	Specifications
Operating system	Windows 10 64-bit (version 1809 or later) or Windows 11 64-bit (version 21H2 or later) or Windows Server 2022
Web browser	Latest version of Chrome browser recommended
Application	MS Office Excel

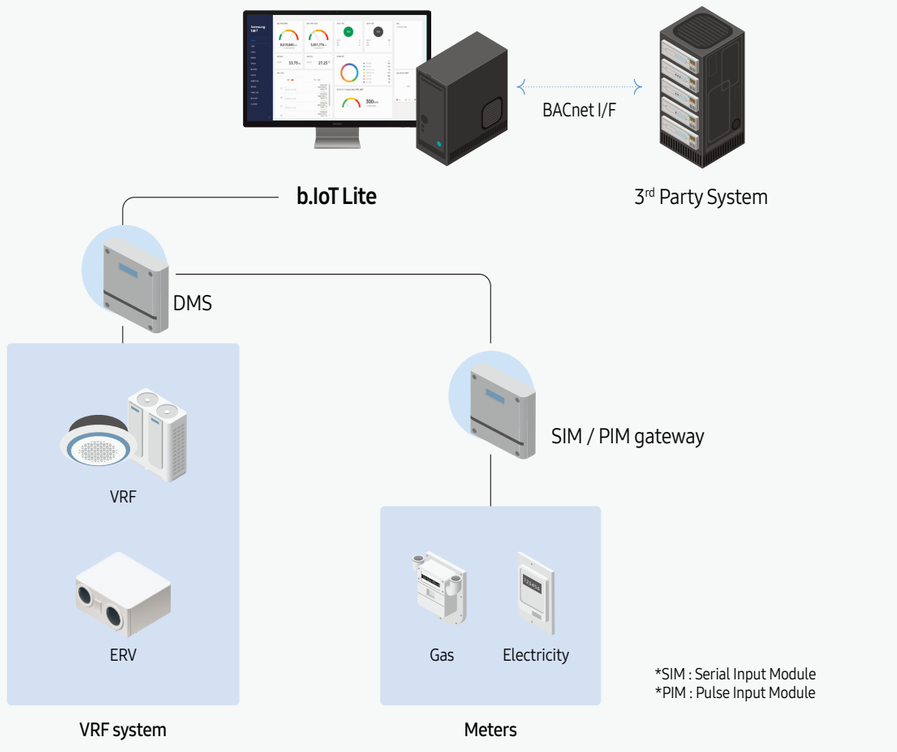
b.IoT Lite

Efficiently manages multiple VRF systems while offering advanced energy-saving features.

Key features of the solution

- VRF system integration
- Energy optimization for air conditioning
- Indoor environment monitoring
- Operational history management
- Account authority management

Solution configuration

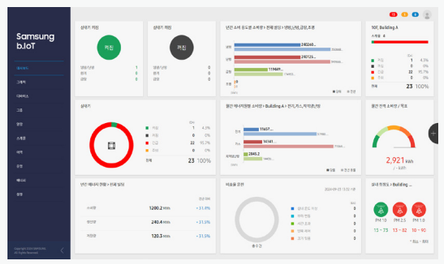


- VRF: Variable Refrigerant Flow

Optimized VRF system

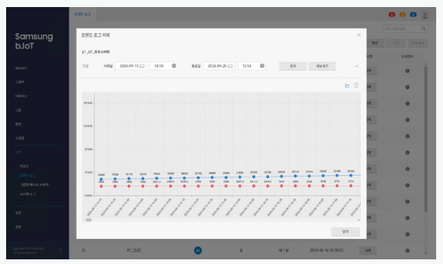
· Operating status dashboard

Users can configure information of interest according to their needs and check it at a glance.



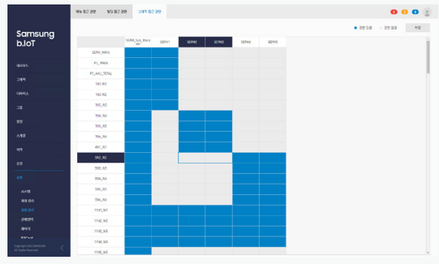
· Operation history management and reporting

Manage operational data of indoor and outdoor units through graphs or save them in Excel files.



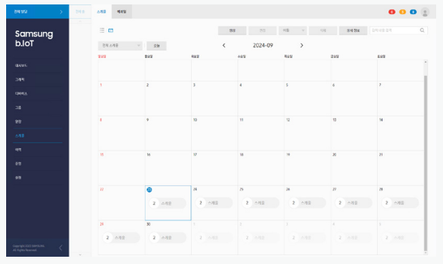
· Control area and authority settings

Assign multiple administrators and designate control buildings for effective building management.



· Schedule control

Manage system air conditioners conveniently in advance based on the building's operational schedule.

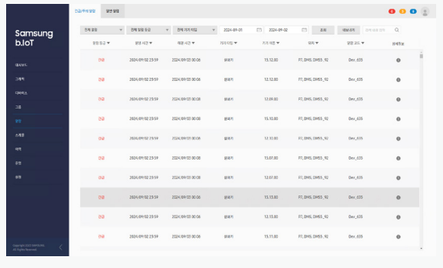


· VRF location visualization

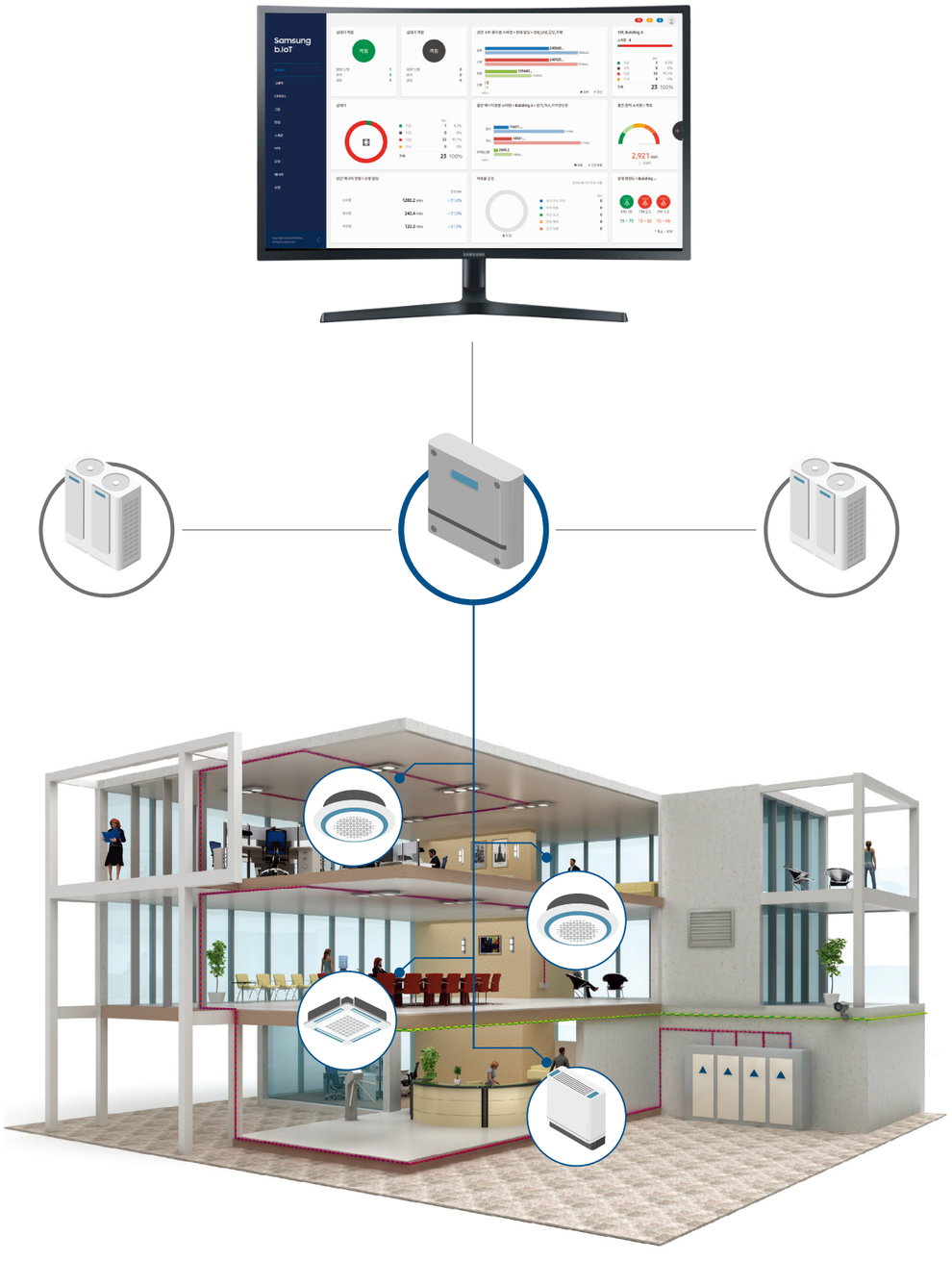
Visualize the location of VRF on each building and floor for intuitive monitoring.

· Alarm history management

Manage alarm histories and detailed information about devices with triggered alarms.



Optimized central control solution for VRF system



Solution specifications

		Lite
Model		AST-BL1A
Number of points per license		500 point
Protocol		BACnet IP (Server / Client), Modbus TCP (Client)
System integration	Connected devices	VRF, power
	Inter-system integration	Supports upper system integration through BACnet
Scalability	Number of client connections	100 Client
	Connectable controllers	DMS, 3rd Party devices
	Number of connections	Device and controller connection capacity adjustable according to control point limits * 1 DMS = 1 Point, 1 Indoor Unit = 1 Point, 1 Outdoor Unit = 1 Point
	Maximum control points	8,000 Point
Certification		BTL (B-OWS)

Hardware requirements

Category	Specifications
CPU	Intel Core i5 or higher
RAM	Minimum 8 GB (Recommended: 16 GB)
Hard disk	1 TB or larger HDD or SSD * If the system is equipped with two or more hard drives, one drive with a capacity of at least 1 TB or 2 TB must be designated as the C: drive and used for installing the b.IoT Enterprise/Standard and operating systems.
Display	1920 × 1080 (FHD) resolution
LAN card	10/100/1000 Base-T (RJ-45 connector)

OS requirements

Category	Specifications
Operating system	Windows 10 64-bit (version 1809 or later) or Windows 11 64-bit (version 21H2 or later)
Web browser	Latest version of Chrome browser recommended
Application	MS Office Excel

b.IoT Energy

Provides energy management system features for Korean zero energy building (ZEB) certification.

Key features of the solution

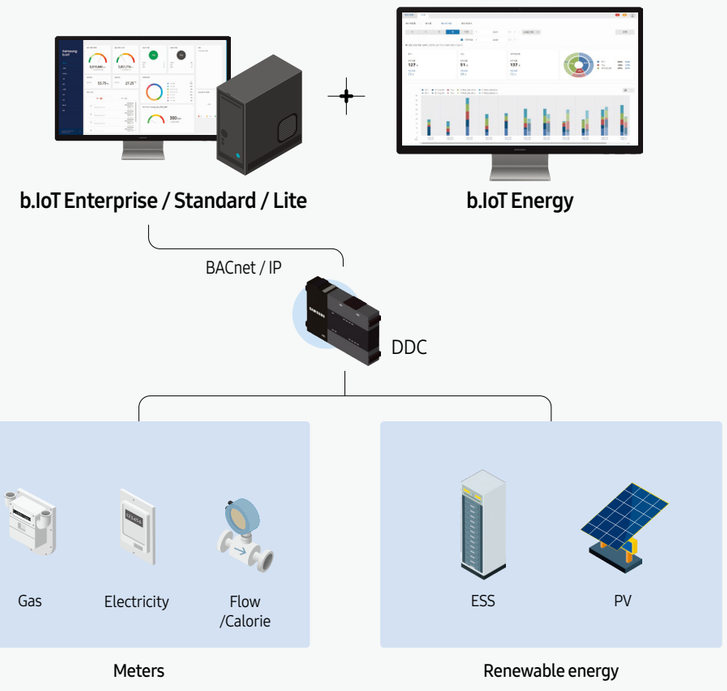
Energy data monitoring

Energy data analysis

Energy equipment and data management

Solution configuration

* b.IoT Energy is an add-on product that requires an additional license key for b.IoT Enterprise, Standard, or Lite to activate its features.



"From 2025, all newly constructed buildings over 1,000m² must obtain zero energy building (ZEB) certification in Korea."

* New construction, reconstruction, or additional structures replacing existing buildings
December 2021, Ministry of Land, Infrastructure and Transport's "2050 Carbon Neutrality Roadmap."

What is a zero energy building?

The Korean government's policy, promoting green buildings, that minimizes the energy required for the building and uses new and renewable energy sources to reduce energy demand in response to global carbon neutrality initiatives.

PASSIVE

Minimum heating and cooling energy requirements
(e.g., enhanced insulation and airtightness performance)

ACTIVE

Reduced energy consumption
(e.g., high-efficiency equipment, building energy management systems)

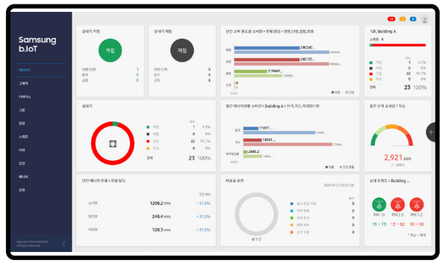
NEW & RENEWABLE

Production of renewable energy
(e.g., solar, geothermal, fuel cells)

Building energy data monitoring & analysis

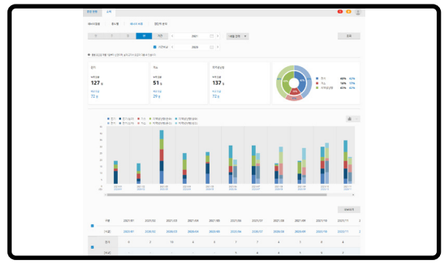
· Energy dashboard

Provides a customizable dashboard tailored to user interests and site conditions. Users can combine over 10 types of energy data cards to easily monitor key points at a glance.



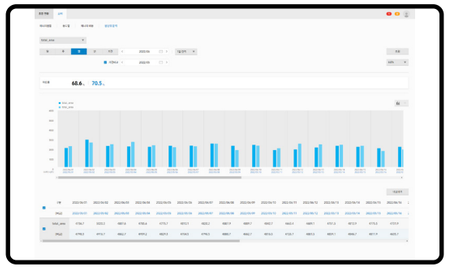
· Energy consumption monitoring

Real-time monitoring of energy consumption by resource and usage, including associated carbon emissions and energy costs.



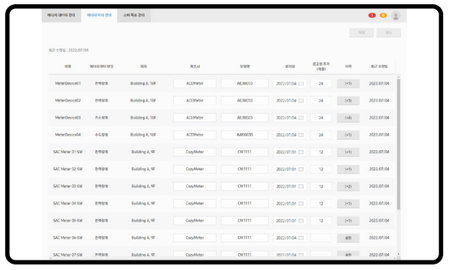
· Energy data analysis

Analyze energy consumption and costs based on unit values and periods set by users, tailored to building characteristics.



· Energy meter and data management

Help comprehensive energy management by providing device information, operation history, and data backup capabilities, along with the classification of normal/abnormal data.



Optimized Energy Saving Control for HVAC equipment

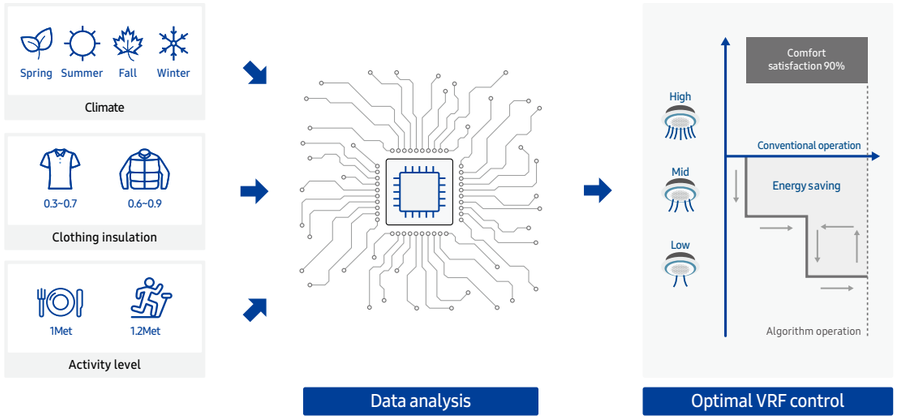
b.IoT provides a variety of AI algorithms that allow energy savings while maintaining optimal conditions.

: Algorithm specifically designed for VRF : Algorithm specifically designed for central AC

Comfort control

- Automatically adjusts indoor temperature settings based on climate data analysis from eight climate zones. Estimates optimal cooling and heating temperatures by considering human factors (preferences, activity levels) to prevent overcooling/ overheating.
- Meets the ASHRAE 55 Standard comfort zone criteria (less than 10% dissatisfaction index).
- Achieves 21.9% energy savings through data-driven optimal control.

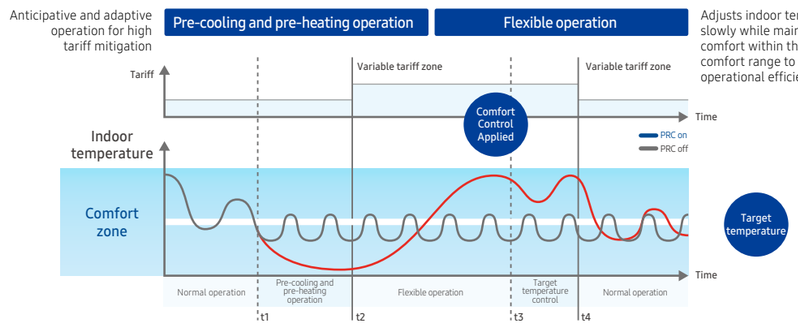
* Note: These figures are based on simulation results and may vary depending on actual environments in which the products will be used.



Price response control (PRC)

- Controls indoor temperature settings effectively to respond to fluctuating tariff systems over time, reducing energy consumption and operational costs.
- Achieves a 6.7% energy saving rate through variable tariff response control.

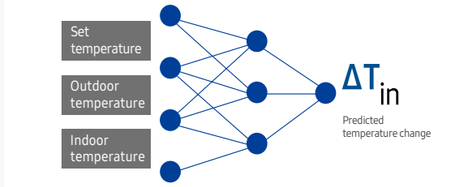
* These figures are based on simulation results and may vary depending on actual usage conditions.



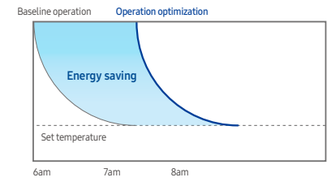
Optimal start

- Optimizing the pre-cooling/pre-heating operation time based on spatial thermal characteristics.
- Predicting the time to reach the target temperature through data learning of temperature changes and air system settings.
- Achieving an energy saving rate of 10.6% through learning-based operation optimization.

* These figures are based on simulation results and may vary depending on real-world usage conditions.



Spatial thermal characteristic modeling

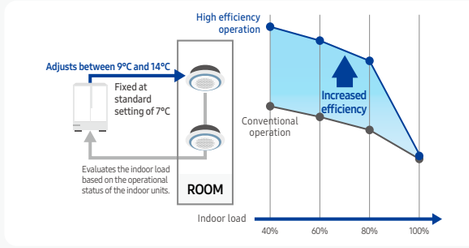


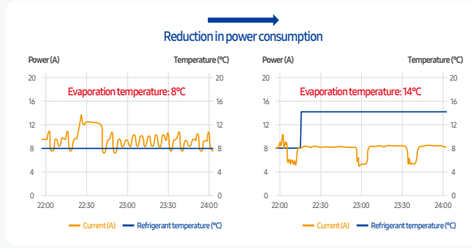
Prediction of spatial thermal characteristics for preheating/precooling

High efficiency control

- Utilizing operational data from indoor units to forecast the indoor thermal load.
- Enhancing the efficiency of outdoor unit operation by controlling the temperature of refrigerant evaporation (cooling) and compression discharge (heating)
- Achieves energy reduction of 18.6% through high-efficiency operation of outdoor units.

* These figures are based on simulation results and may vary depending on real-world usage conditions.





Comfort control
- Based on the simulation conducted by Samsung

- Simulation tool: EnergyPlus
- Building: Poland Warsaw Spire Tower
- Features: Office (Located in Warsaw, 22 floors, total area: 1,554㎡)
- Weather data: Warsaw climate (annual temperature range: -5°C to 29°C)
- Settings: Heating 21°C, Cooling 24°C
- Application period: 08:00 to 18:00
- Application scope: 73 office zones, including 51 office indoor units (2 VRF outdoor units)
- Verification method: Comparison of power consumption between algorithm-applied and non-applied scenarios during annual operations

Price response control (PRC)
- Based on the simulation conducted by Samsung

- Simulation tool: EnergyPlus
- Building: Standard office building (Designated by Architectural Institute of Japan)
- Features: Office (Located in Seoul, 10 floors underground, total area: 8,264㎡)
- Weather data: Seoul standard weather data (provided by Korea Solar Energy Society)
- Applied device: DVMS (Heating 24°C, Cooling 26°C)
- Application period: 05:00 to 20:00
- Verification method: Comparison of power consumption and electricity costs between algorithm-applied and non-applied scenarios during annual operations
- Tariff classification: General-use electricity (B) / industrial-use electricity (B) (high-voltage, A selected)

Optimal start
- Based on the simulation conducted by Samsung

- Simulation tool: EnergyPlus
- Building: Standard office building (US DOE reference building-medium office)
- Features: Office (Located in Seoul, 10 floors underground, total area: 1,660㎡)
- Weather data: Washington, D.C., climate (annual temperature range: -4°C to 30°C)
- Applied device: DVMS
- Application period: 06:00 to 08:00
- Verification method: Comparison between scenarios with and without pre-cooling/pre-heating algorithm applied (normal operation starts at 06:00)

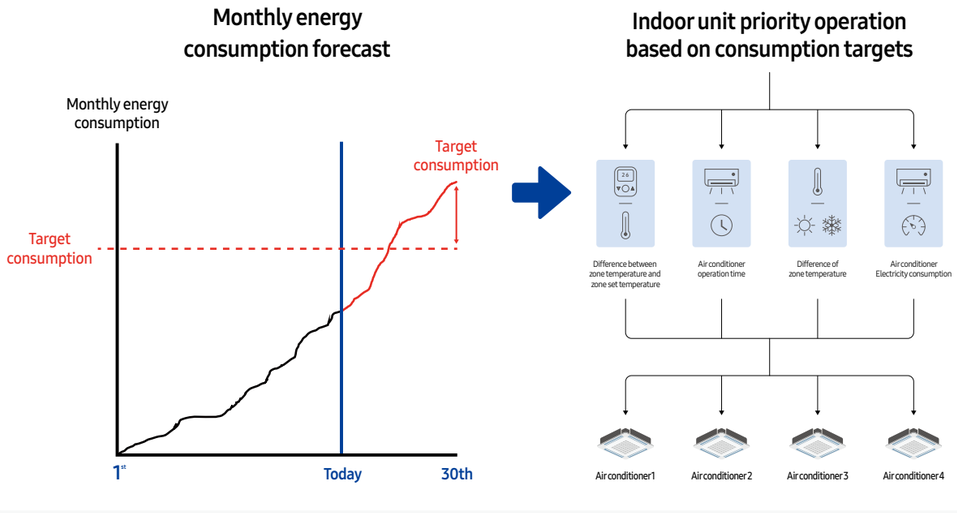
High efficiency control
- Based on the simulation conducted by Samsung

- Simulation Tool: EnergyPlus
- Building: Standard office building (Designated by Architectural Institute of Japan)
- Features: Office (Located in Seoul, 10 floors underground, total area: 8,264㎡)
- Weather data: Seoul standard weather data (provided by Korea Solar Energy Society)
- Applied device: DVMS
- Verification method: Comparison of power consumption between algorithm-applied and non-applied scenarios during annual operations

Target control

- By targeting multiple indoor units linked to outdoor units, analyzes indoor unit usage patterns and outdoor unit operating conditions to predict power consumption.
- Automatically optimizes indoor unit settings to prevent energy overconsumption, ensuring overall electricity usage does not exceed set targets.

* If the target is set significantly lower than actual environmental needs, energy consumption may exceed the intended target.



Energy loss detection

- Analysis of indoor operation data provides detection and guidance on five factors that may lead to energy waste.

Space leakage detection

Analyzing temperature changes and characteristics by space to identify thermal leaks (e.g., windows, open doors) within the area.

Time leakage detection

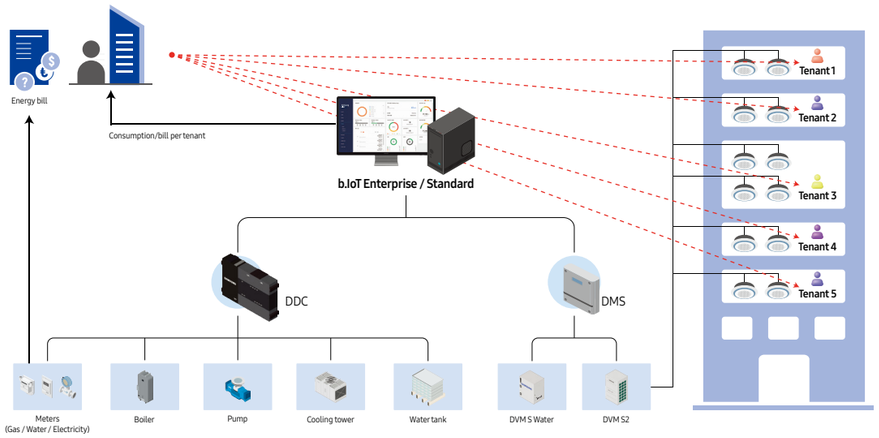
Identifying extended operation hours beyond the regular schedule or outside designated times for operation.

Temperature setting management

Detection of abnormal/inefficient temperature settings

Energy distribution

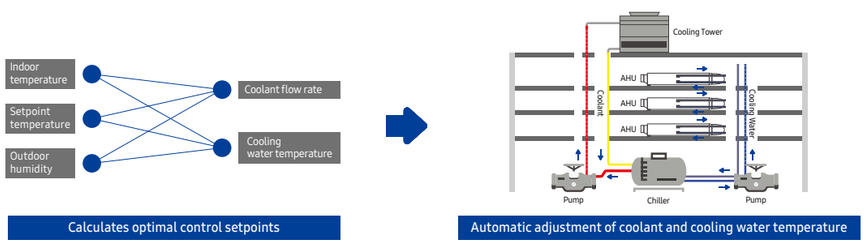
Based on the heat processing capacity of each indoor unit, the energy consumption required for the operation of indoor and system air conditioners (chillers, pumps, boilers) is distributed by tenant (zones, rooms, departments, etc.).
→ Utilized for understanding energy consumption and cost calculation per tenant.



Part load control

An algorithm that minimizes energy consumption in real time by aligning with the indoor load for centralized HVAC systems with chillers and cooling towers.
- Controls chiller temperature and cooling tower water temperature based on indoor load.
- Reduces energy consumption of chillers and cooling towers by up to 20.3% in low-load areas, with an average reduction of 7.2%.

* These figures are based on Samsung Electronics' internal testing results and may vary depending on real-world usage conditions.



Verification method

- Building: Samsung Electronics Vietnam Hanoi R&D center
- Features: Office (16 floors above ground, 3 floors below ground, total area 79,511 m²)
- Applied equipment: Trane chillers/cooling towers, McQuay chillers/cooling towers
- Verification period: January 12, 2022 - January 26, 2022
- Verification method: Comparison of system power consumption with and without applying the algorithm

Device

Samsung b.IoT provides various core devices to create an optimal building environment.

With core controllers responsible for integrating equipment and VRF,
reliable HVAC systems, and field devices with guaranteed quality,
the building's internal facilities are managed in their optimal state.

01. Building automation controller

02. Field devices

03. VRF controller

Smart Controller

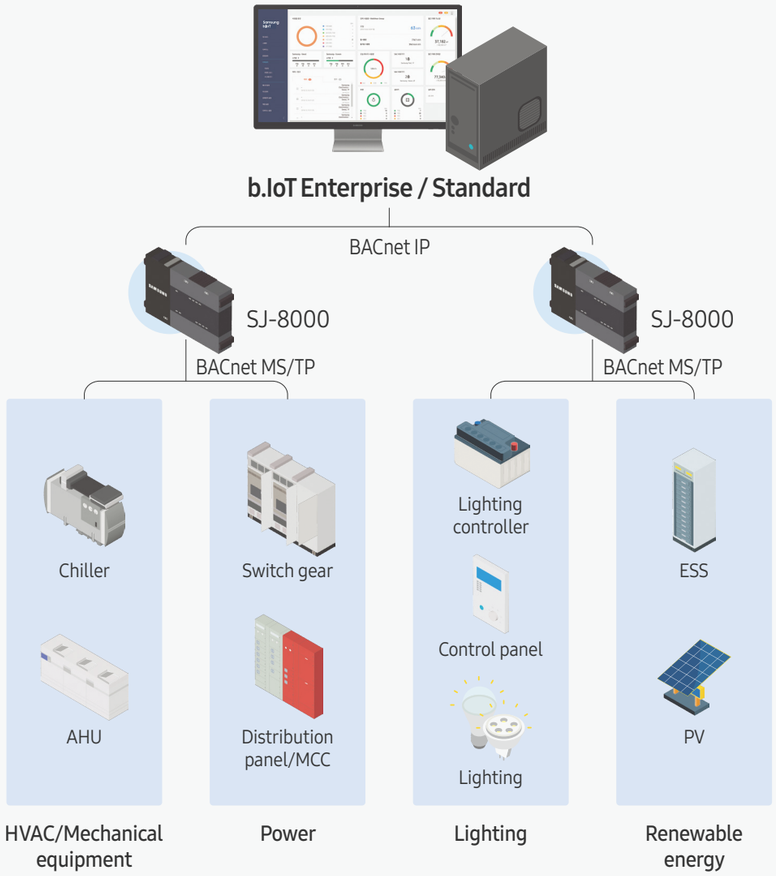
SJ-8000 series

The SJ-8000 series is a central controller that supports various communication protocols to ensure integrated operation of multiple systems and devices within the building.

Central controller supporting various open protocols

Supports open platform niagara framework

An efficient modular smart controller based on the robust Niagara Framework 4 open platform.
It supports numerous open communication protocol drivers, including BACnet, Modbus, LonWorks, KNX, and OPC-UA.

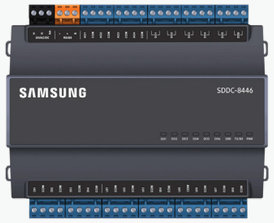


Model	SJ-8010	SJ-8025	SJ-8100
Max I/F points	500	1,250	5,000
CPU	TI AM3352 : 1000MHz ARM® Cortex™-A8		
Memory	1GB DDR3 SDRAM		
Input power	24V AC / 24V DC		
Power consumption	24VA		
Storage capacity	Micro-SD, Total 4GB (User Space 2GB)		
Internal battery	None		
Operating environment	Niagara 4: Niagara 4.1 or higher		
Communication supports	Wi-Fi (Client or WAP) IEEE802.11a / b / g / n		
	10/100Mbps Ethernet × 2 ports		
	RS-485 × 2 ports (max 115.2kbps)		
	USB × 1 port (Backup and restore support)		
Mounting	4 mounting holes for fastening or EN50022 Standard 35mm DIN Rail		
Dimensions (W × H × D)	179 × 110 × 61 mm		
Operating environment (Temp./Hum.)	-20 - 60°C / 5% - 95% (Relative Humidity)		
Storage environment (Temp./Hum.)	-40 - 85°C / 5% - 95% (Relative Humidity)		
Weight (Net / Shipping)	388g / 565g		
Certifications	KC, BTL (B-BC), UL 916, CE EN 61326-1, RCM, CCC, SRRC, RSS, RoHS FCC Part 15 Subpart B, Class B, FCC Part 15 Subpart C C-UL listed to CSA C22.2 No. 205-M1983, 1999/5/EC R&TTE Directive		

Modular Controller

SDDC-8446

An economical modular-type controller that supports standard communication protocols BACnet MS/TP and Modbus RTU, typically used in building automation control.



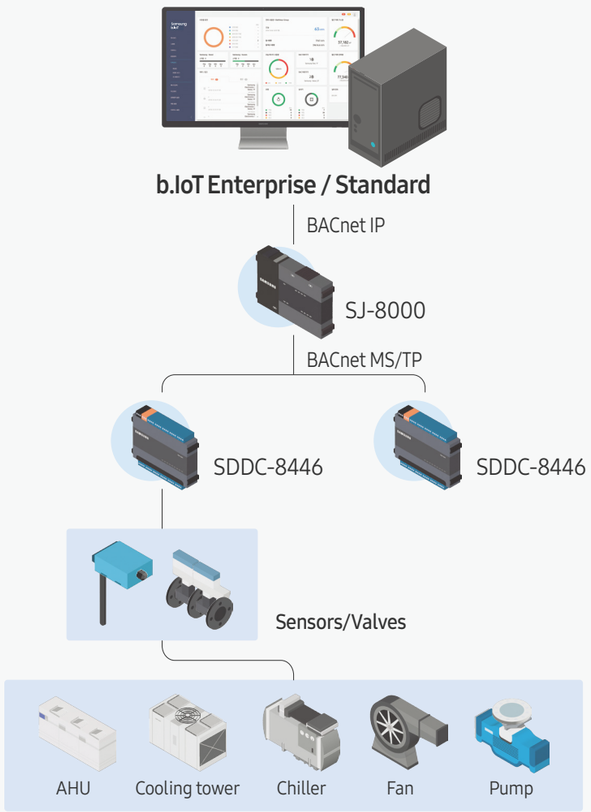
Controller with expandable I/O ports and standalone operation

Expandable I/O ports using expansion modules

Additional expansion modules can be added to configure systems that meet various on-site requirements.

Standalone operation capability

The controller's built-in control logic, scheduling functions, and internal backup battery enable standalone operation independent of the network.



Model		SDDC-8446
CPU		ARM Cortex 32-bits Processor
Memory		96KB (RAM)
Input power		24V AC ±5%, 24V DC +20% / -10%
Power consumption		10W
Storage capacity		512KB (Flash)
Internal battery		Panasonic CR1220 Lithium Battery
Communication ports		RS-485 1 port Modbus: 9.6K ~ 115.2Kbps BACnet: 9.6K ~ 76.8Kbps (8 bits, None / Even / Odd)
Mounting		Fixed with 4 mounting holes or EN50022 standard 35mm DIN rail
Dimensions (W × H × D)		166 × 134 × 62 mm
Operating environment (Temp./Hum.)		Temperature: 0 - 55°C / Humidity: 5% - 95% (non-condensing)
Storage environment (Temp./Hum.)		Temperature: -20 - 85°C / Humidity: 5% - 95% (non-condensing)
Weight (Net / Shipping)		365g
Universal input (UI)	No. of channels	8 channels (12-bit / PGA)
	Voltage	0 - 10V (±0.01V)
	Current	4 - 20mA, 0 - 20mA (±0.01mA)
	Resistance	0 - 50K, PT1000
	Thermistor	NTC: 10K TYPE 2/3, 3K, 20K (±0.1°C)
	Others	True DI support
Digital input (DI)	No. of channels	4 channels
	Type	Dry contact, voltage-free contact
	Others	ON < 5000Ω, OFF > 90000Ω
Digital output (DO)	No. of channels	6 channels
	Type	Relay, SPST NO, 30VDC 1A / 125VAC 0.5A
Analog output (AO)	No. of channels	4 channels, 12-bit
	Voltage	Voltage: 0 - 10V
	Current	Current: 0 - 20mA, 4 - 20mA (maximum load, 500Ω)
Certifications		KC, BTL (B-ASC), IEC 61000-3-2 / 3, 4-2 / 3 / 4 / 5 / 6 / 8 / 11, FCC Part 15 Subpart B Class B, FCC Part 15 Subpart C, Subpart E

I/O Expansion Module

SIO-6020 / 0800 / 0008

These I/O modules are used with modular controllers to expand the input/output port capacity of DDCs. They support communication protocols such as BACnet MS/TP and Modbus RTU.

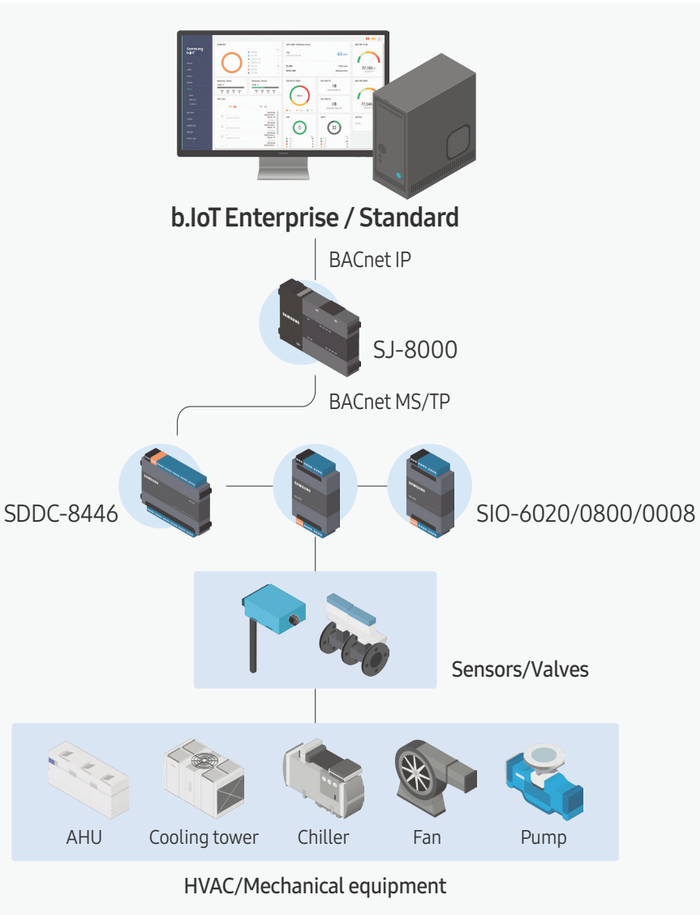
Expansion modules with high accuracy and compatibility

Standard communication protocols

These modules support communication protocols widely used in the building automation sector, including BACnet MS/TP and Modbus RTU, enabling real-time monitoring of connection points with upper-tier software.

Precise analog channel conversion

Equipped with 12-bit PGA (Programmable Gain Amplifier)-based analog-to-digital converters (ADC), these modules provide highly accurate analog value measurements.

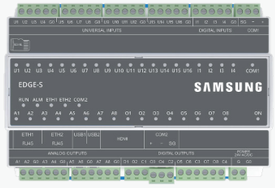


Model				SIO-6020 / SIO-0800 / SIO-0008
CPU				ARM Cortex-M3, 24MHz
Memory				SIO-0800 & SIO-0008: 32KB (RAM), SIO-6020: 24KB (RAM)
Input power				24V AC ±5% or 24V DC +20% / -15%
Power consumption				10W
Storage capacity				256KB (Flash)
Communication port				RS-485 (1 port) Modbus: 9.6k - 115.2kbps, BACnet: 9.6k - 76.8kbps, 8 bits, None / Even / Odd
Input /Output port	SIO-6020	Universal input (UI)	No. of channels	6 channels (12-bit / PGA)
			Voltage	0 ~ 10V (±0.01V), 0 ~ 5V (± 0.01V)
			Current	4 ~ 20mA (±0.01mA), 0 ~ 20mA (±0.01mA)
			Resistance	0 - 50KΩ
			Thermistor	NTC (10K TYPE 2/3, 3K, 20K, ±0.1°C)
			Others	True DI supported
		Analog output (AO)	No. of channels	2 channels (12-bit)
			Voltage	0 ~ 10V
			Current	0 - 20mA, 4 - 20mA (Maximum Load 500Ω)
	SIO-0800	Digital input (DI)	No. of channels	8 channels
			Type	Voltage-free contact, isolated 3.7kV
			Others	ON < 500Ω, OFF > 9000Ω
	SIO-0008	Digital output (DO)	No. of channels	8 channels
			Type	Relay, SPST NO, 30VDC 1A / 125VAC 0.5A
Mounting				Standard 35mm DIN Rail (EN50022)
Dimensions (W x H x D)				89 × 134 × 62 mm
Operating environment (Temp./Hum.)				0 to 55°C/5% - 95% (Relative Humidity)
Storage environment (Temp./Hum.)				-20 to 85°C/5% - 95% (Relative Humidity)
Weight (Net / Shipping)				183g
Certifications				KC, BTL (B-ASC), IEC 61000-3-2 / 3, 4-2 / 3 / 4 / 5 / 6 / 8 / 11, FCC Part 15 Subpart B Class B, FCC Part 15 Subpart C, Subpart E

Smart Gateway

Edge-S

The IoT edge gateway is an IP-based controller designed for various uses such as control, monitoring, alerts, logging, scheduling, and logic-based management, as well as device I/F and data visualization.



Gateway supporting diverse standard protocols and input/output methods

Standard open source protocols

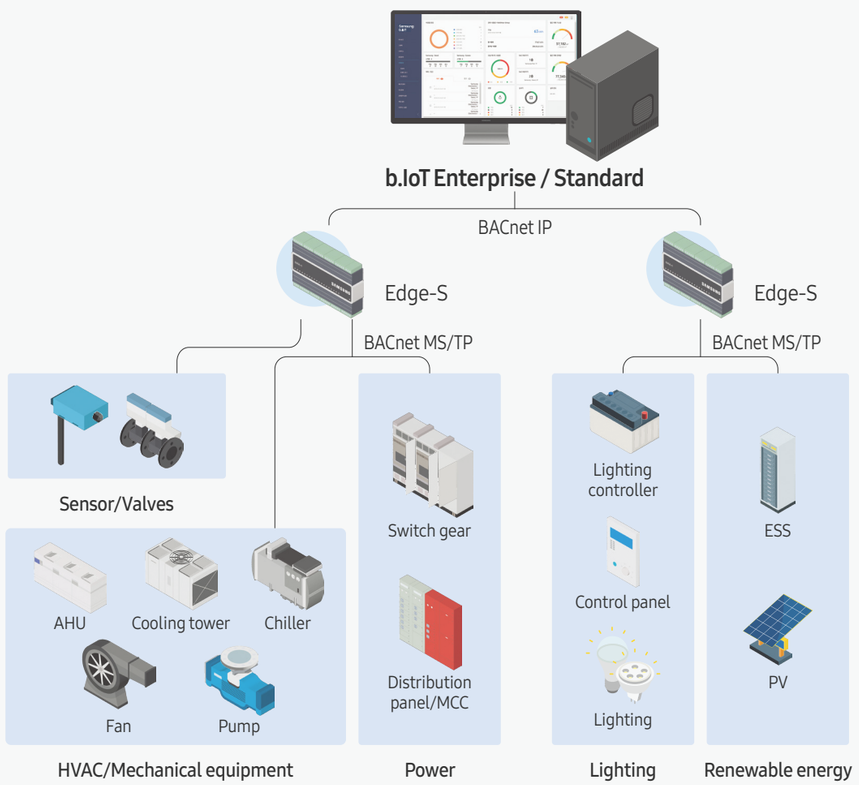
Supports industry-standard protocols widely used in building automation systems, such as BACnet IP & MS/TP, Modbus TCP & RTU/ASCII, KNX IP, M-Bus IP, and LON IP.

Sufficient input/output capacity for independent operation

Provides ample input/output ports (16 UI, 8 AO, 4 DI, and 8 DO), ensuring versatility and adaptability for various applications.

Vivid graphic interface

Displays a variety of information via standard web browsers or built-in HDMI and USB ports when connected to a display (touchscreen support included).



Model		Edge-S
CPU		Dual core ARM Cortex-A processor 1000MHz
Memory		1GB DDR3 SDRAM
Input power		24VAC / 24VDC
Power consumption		24VA (AC) / 14W (DC)
Storage capacity		4GB (NAND), Micro-SD Card
Clock battery		Lithium battery
Communication ports		10/100Mbps Ethernet 2 ports
		RS-485 2 ports (up to 115.2kbps)
		2 USB ports (touchscreen, mouse/keyboard)
		HDMI 1.4 (Standard A type) port
Supported protocols		Modbus TCP, Modbus RTU / ASCII, BACnet IP, BACnet MS/TP, oBiX, SNMP, KNX IP, M-Bus IP, LON IP
Mounting		Compatible with DIN43880 panel regulations DIN rail EN50022 35mm standard
Dimensions (W × H × D)		160 × 111 × 62 mm
Operating environment (Temp./Hum.)		0 to 55°C/5% - 95% (Relative Humidity)
Storage environment (Temp./Hum.)		-40 to 85°C/5% - 95% (Relative Humidity)
Weight (Net / Shipping)		509g / 640g
Universal input (UI)	No. of channels	16
	Voltage	0-10 VDC input impedance: 100 kΩ Offset range: ±0.1% (3 mV at 12-bit and 1 mV at 16-bit)
	Current	0-20 mA external resistance: 200 Ω Offset range: ±1.1% (15 μA at 12-bit, 5 μA at 16-bit)
	Digital input	Current input 1mA or less
	Resistance	0-1000 kΩ 20 kΩ load: 20 Ω at 12-bit, 1 Ω at 16-bit, PT1000 / N1000: 0.1 Ω at 16-bit, NTC 10K, 3K, 20K, Measurement method: Voltage divider
	Resolution	12-bit (default), 16-bit
Digital input (DI)	No. of channels	4
	Type	Dry contact connection, Fast pulse counter
	Maximum frequency	100 Hz
Analog output (AO)	No. of channels	8
	Voltage	0-10 V DC
	Current	20 mA
	Resolution	12-bit
	Offset	±0.5%
Digital output (DO)	No. of channels	8
	Relay type	3A at 230VAC, 3A at 30VDC (AC1)
Certifications		KC, BTL (B-BC), UL 60730-1 and CAN/CSA-E60730-1:15, CE EN 60730-1, EN IEC 61000-6-1, 2, 3, 4 FCC Part 15 Subpart B, Class B, RoHS

Field devices

Samsung Electronics provides a variety of dampers, valves, and actuators for air conditioning and heating systems.
Through these high-quality field devices, customers can achieve an optimal building environment.

Valves

Control precision and high impact resistance valves enable stable control.
Accordingly, energy efficiency can be improved, while installation costs can also be minimized.

Type	Image	Model	Remarks
2-Way control valve (Water)		R2015-4-S1 | R2020-6P3-S1 R2025-10-S2 | R2032-16-S2 R2040-25-S2 | R2050-40-S3 R664AO | R679AO R6099AO | R6124AO R6149AO	15A | 20A 25A | 32A 40A | 50A 65A | 80A 100A | 125A 150A
Valve actuator (For water)		TR24-SR | LR24A-SR NR24A-SR | SR24A-SR-5 GR24A-SR-7	for 15, 20A | for 25, 32, 40A for 50A | for 65, 80A for 100, 125, 150A
2-Way control valve (Steam)		R614AS | R624AS R639AS | R649AS R664AS | R679AS	15A | 25A 40A | 50A 65A | 80A
Valve actuator (For steam, spring return)		LFH24-SR-S | SRF24A-SR-5	for 15, 25A | for 40, 50, 65, 80A
FCU valve (Integrated)		C215Q-J+CQ230A C220Q-K+CQ230A	15A, 230V OPEN/CLOSE 20A, 230V OPEN/CLOSE
FCU combined valve (Integrated)		C215QP-D+CQ24A-SR C220QP-F+CQ24A-SR C220QP-G+CQ24A-SR	15A, 24V Proportional 20A, 24V Proportional
Compound valve (Integrated)		EP015R+MP | EP020R+MP EP025R+MP | EP032R+MP EP040R+MP | EP050R+MP P6065W806E-MP P6080W1106E-MP P6100W2006E-MP P6125W3106E-MP P6150W4506E-MP	15A | 20A 25A | 32A 40A | 50A 65A 80A 100A 125A 150A

* Must be supplied with a control valve together with a dedicated valve actuator

Sensors

We provide sensors with excellent reliability and easy installation, compatible with building automation systems (BAS).
The product line includes sensors for temperature, humidity, pressure, CO2, and pipes/ducts, as well as application-specific sensors such as VOC (volatile organic compound) detectors.

Type	Image	Model	Remarks
Duct temperature		01DT-1BR / A-22D-A03	Only mount kit is different
Pipe temperature		01DT-1BL / A-22P-A14	
Outdoor temperature		01UT-1B	
Duct temperature & humidity		22DTH-11M	
Outdoor temperature & humidity		22UTH-13	
Duct CO2		22DC-11	
Filter differential pressure switch		01APS-10U	
Duct pressure / Static pressure sensor		22ADP-184	
Pipe pressure		22WDP-114	
Pipe static pressure		22WP-117	

Damper actuators

The damper actuators are designed for use in a variety of HVAC damper applications.
The comprehensive range of damper actuators responds to various requirements, automating the opening and closing of dampers and controlling their operation within HVAC systems.

Type	Image	Model	Remarks
Proportional control		LM24A-SR | NM24A-SR SM24A-SR | GM24A-SR	5Nm | 10Nm 20Nm | 40Nm
Open/Close		LM24A | NM24A SM24A | GM24A	5Nm | 10Nm 20Nm | 40Nm
Spring return/ Proportional control		LF24-SR | NF24A-SR SF24A-SR | EF24A-SR	4Nm | 10Nm 20Nm | 30Nm
Sprin return/ open/close		LF24-S | NFA-S2 SFA-S2 | EF24A-S2	4Nm | 10Nm 20Nm | 30Nm

Controller for VRF

DMS 2.5

A comprehensive control system that facilitates the operation management of multiple VRF, data storage, peak power management, and precise power distribution.

VRF system monitoring and control

VRF control/monitoring

Control and monitor up to 256 indoor units, manage error logs, and provide user-specific Security Level features.

Schedule control

Weekly/daily repeat schedule settings for up to 256 scheduled automated tasks, with query options for scheduled control history.

Built-in web server functionality

Enables remote control and monitoring through a web browser using the built-in web server (limited to the same communication network).

Power/gas consumption distribution

Measures air conditioning system usage to allocate electricity (EHP) and gas (GHP) consumption. Supports up to 256 indoor units and stores one year of data.

Logic control function

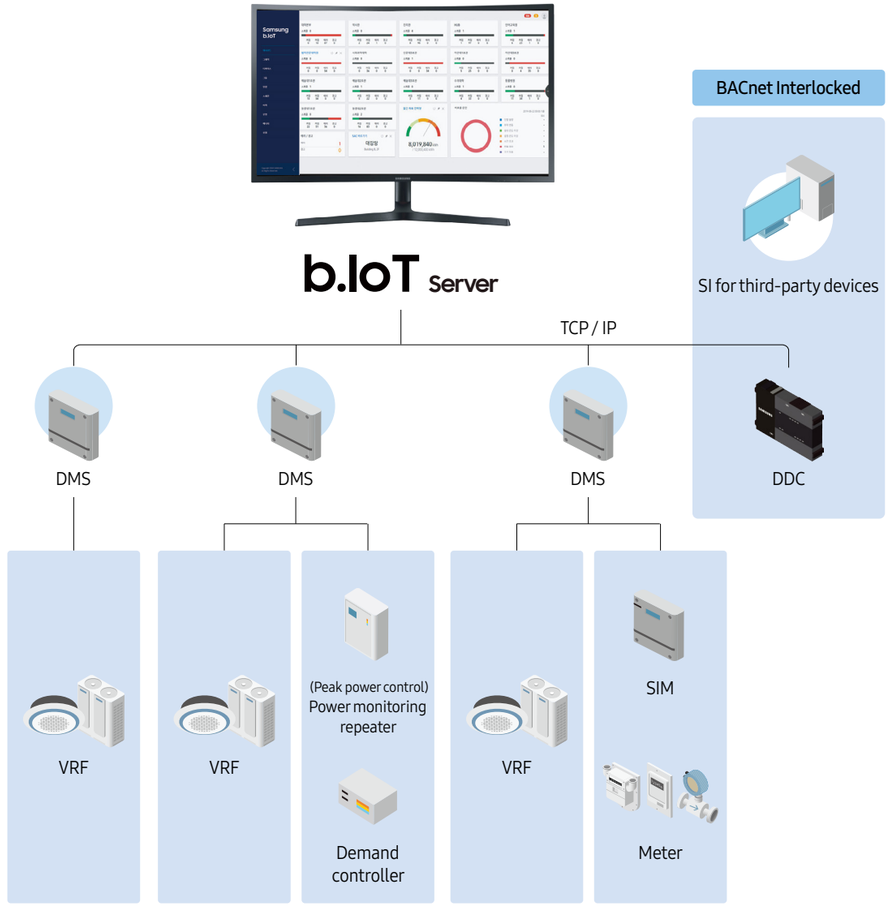
Create and edit control logic to operate indoor units in a variety of conditions.

Peak power control

Efficient power consumption management with priority control, configuration of two operation modes, and simultaneous peak control for all indoor units in a building.

Automatic mode switching operation

Automatically switches between cooling and heating modes during in-between seasons, such as spring and fall, to efficiently maintain optimal indoor temperatures.



- VRF: Variable Refrigerant Flow

Model		AIM-D01AN
Dimensions (W × H × D)		240 × 255 × 64.8 mm
Power supply		12Vdc 3A
Communication type	Supported protocol	NASA protocol
Communication ports	VRF Communication (RS-485)	5 port
	Ethernet (10/100Mbps)	1 port
I/O (Default)	DI	10 channels (Dry Contact)
	DO	8 channels (12Vdc)

Reference

With Samsung b.IoT, you can unlock new value and enjoy the benefits of seamlessly connecting people, spaces, technology, products, services, and solutions.

01. OFFICE
- Factorial Seoungsu
- Wonju Startup Support Hub
- Samsung Electronics Digital Research Center
- Samsung Electronics Mobile Research Center
- TELTONIKA Headquarters
- The Warsaw Hub
- Daegu Samsung Creative Campus
- Sejong Finance Center II

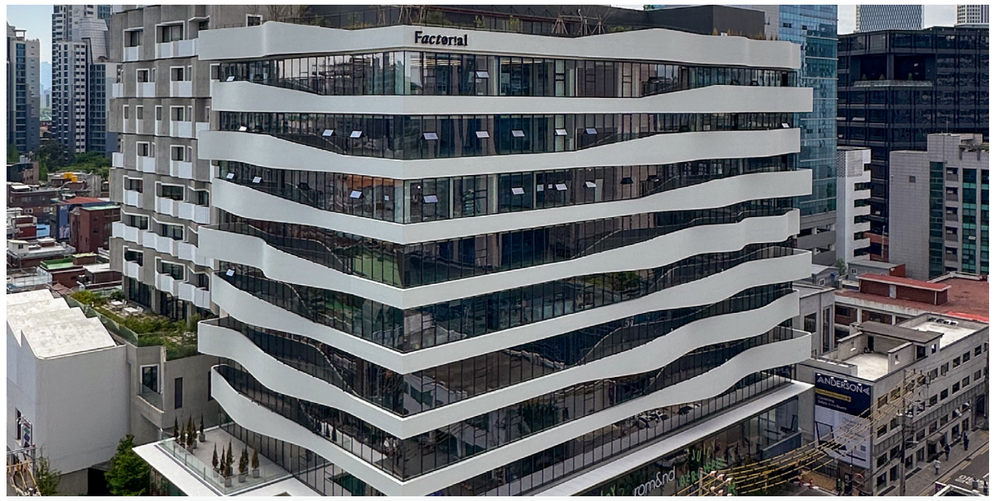
02. CAMPUS
- Sungkyunkwan University 600th Anniversary Hall
- Chonnam National University
- Kyung Hee University

03. HOTEL
- Shilla Stay Plus Ihotewoo
- Yeongdeok Training Center

04. FACTORY
- Shinwha Intertek
- Samsung Electronics Poland Factory
- Samsung Electronics Gwangju Plant 3
- Samsung Electronics Vietnam Factory
- Samsung Electronics North America Factory

Facility control solution tailored for a smart office solution

Factorial Seongsu

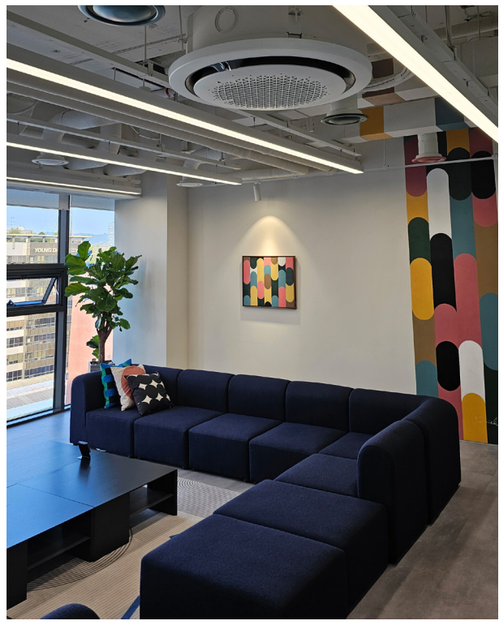


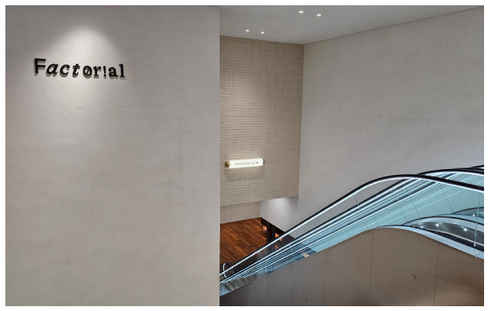
IGIS Asset Management collaborated with global innovators like Samsung Electronics and Hyundai Motor Group to develop Factorial Seongsu, a state-of-the-art office building located in Seongsu-dong, Seoul.
Samsung b.IoT integrates and manages various building facilities, including Samsung VRF, power, lighting, and equipment. Additionally, through collaboration with Pinpoint, a company providing digital operational services such as reservations, parking, and payments, this system enables tenants to enjoy seamless mobile app experiences, encompassing Samsung Electronics' VRF systems and IoT technologies.

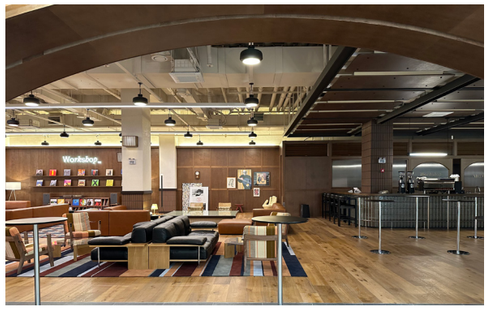
Integrated control for VRF

Building automation control

Mobile app integration







VRF - integrated control

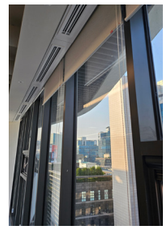
- Integrated control and monitoring of Samsung Electronics' outdoor units and indoor units.

BAS integration

- Integrated control of HVAC (AHU, Chiller, FCU, etc.), power, and lighting systems.

Integrated with tenants' 3rd Party apps

-Monitoring and granting control access to VRF systems through mobile applications.



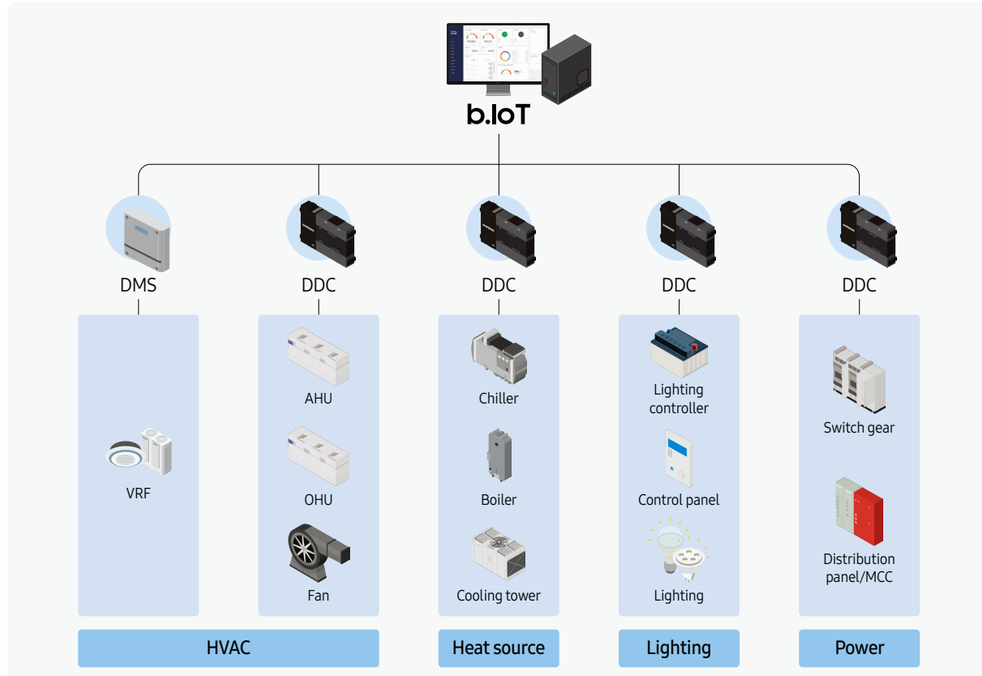
Power

Lightings

Chiller-heater

System configuration

- Supplied and constructed by Samsung Electronics: HVAC system (Chiller, Cooling Tower, AHU, FCU, EHP, GHP).



- VRF: Variable Refrigerant Flow

Comprehensive energy management solution
for zero energy building certification

Wonju Startup Support Hub

The Wonju Startup Support Hub, located near Namwonju Station, is a building constructed with a total of three floors above ground and one basement floor to foster future industries and youth entrepreneurship in Wonju. The first floor features a conference hall and amenities, the second floor houses the Wonju Future Industry Promotion Agency and the Gangwon Creative Economy Innovation Center, and the third floor provides space for about ten companies.

The Wonju Startup Support Hub utilizes Samsung b.IoT solutions to monitor the building's energy consumption (electricity and gas) and production (solar energy). It has obtained the zero energy building certification, which will become a mandatory requirement for most new buildings in Korea starting in 2025 under the government's carbon neutrality policy.

Zero-energy building

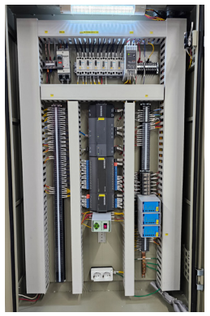
Building energy management system

Building energy management system

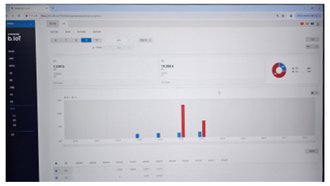
- Monitors consumption of electricity/gas (GHP) and solar energy production (BIPV, PV).
- Monitors energy consumption by purpose (cooling, heating, hot water).

BAS integration

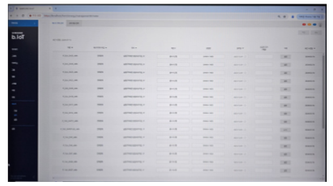
- Integrates and controls fire pumps, supply fans, and drainage pumps.



Graphic



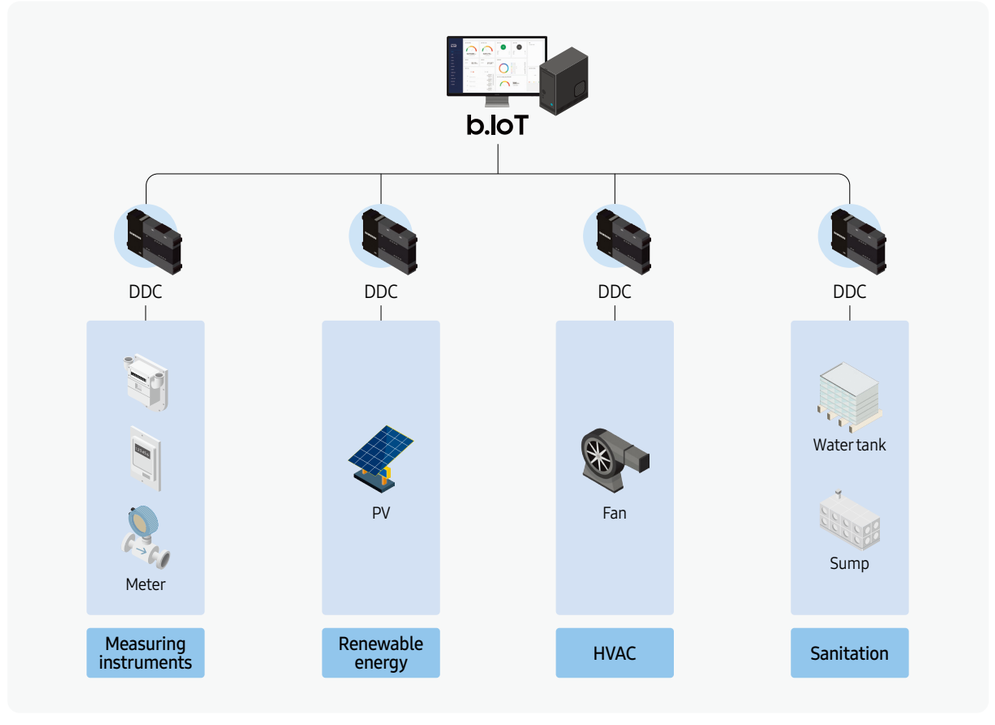
Energy consumption



Meters

System configuration

- Automatic control supplied and installed by Samsung Electronics



Comprehensive automation solutions for office complexes

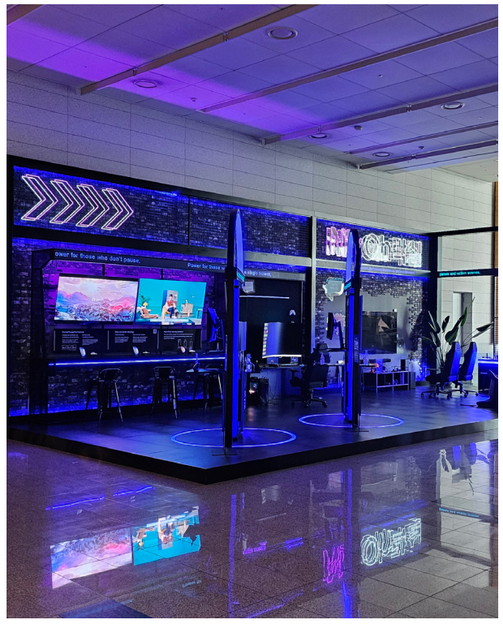
Samsung Electronics Digital Research Center

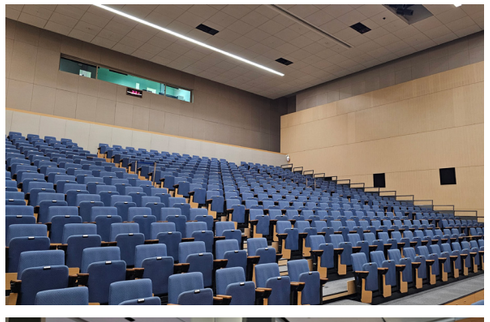
Samsung Electronics Digital Research Center is located in Digital City, Suwon, Gyeonggi-do. This state-of-the-art office complex spans 37 above-ground floors and 5 underground levels, covering a total area of 214,910 square meters, and accommodates approximately 9,000 employees. The complex is not just a standard office space; it also includes research labs and requires precise management of HVAC and utility systems. Through Samsung's b.IoT solutions, 230 outdoor units and 933 indoor units, along with 1,263 VAV, are seamlessly managed.
Moreover, the center implements professional energy consumption analysis to optimize the operations of central HVAC systems, ensuring both efficient energy use and cost savings, all while maintaining a comfortable indoor environment.

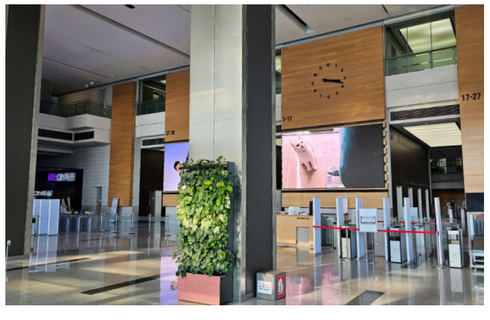
Integrated control for VRF

Building automation control

Energy commissioning







VRF - integrated control

- Comprehensive control and monitoring of 230 outdoor units and 933 indoor units.

Integrated VAV (Variable air volume) control

- Integrated control and monitoring of 1,263 VAV.

BAS integration

- Centralized control of HVAC systems (AHU, fans, etc.), heat sources (absorption chillers, tunnel coolers, heat exchangers, boilers, etc.), and utilities (compressors, coolers, etc.).

Integrated HVAC energy management

- Optimized control of HVAC and VRF to reduce energy consumption.

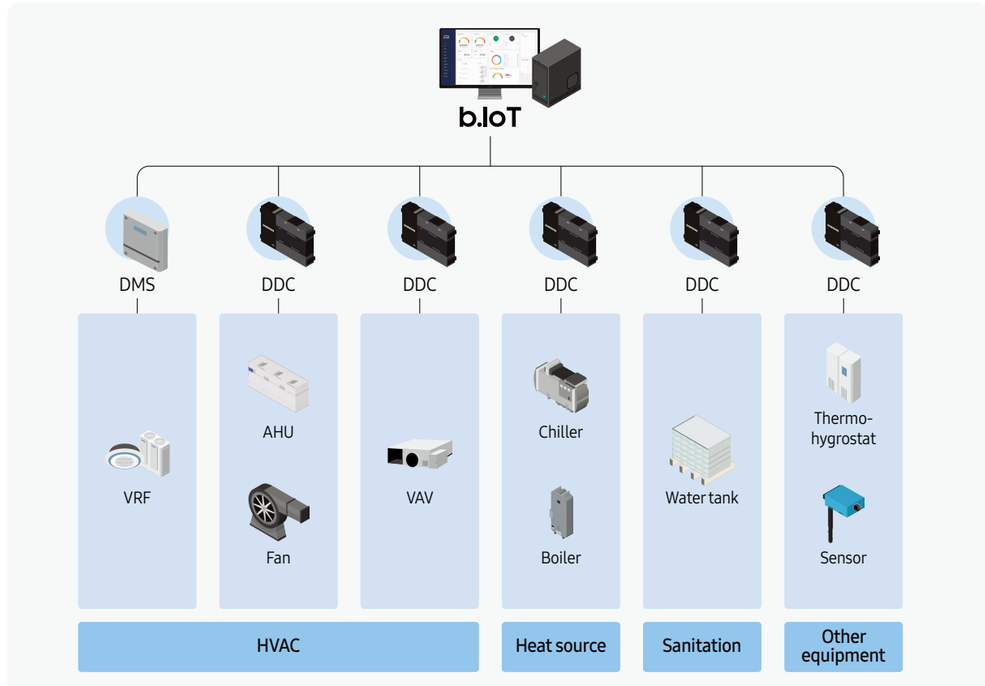
VAV

Damper

Water leak

System configuration

- HVAC (EHP) supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Comprehensive automation solutions for office complexes

Samsung Electronics Mobile Research Center

The Samsung Electronics Mobile Research Center, located in Samsung Digital City in Suwon, Gyeonggi Province, consists of two buildings with 27 above-ground floors and 5 underground floors, spanning a total floor area of 308,980m². It accommodates approximately 10,000 employees. In addition to standard office spaces, the facility includes a wide variety of research facilities and culture spaces, necessitating precise HVAC equipment management. The b.IoT system integrates and manages 497 outdoor units, 3,315 indoor units, and 1,508 VAVs of Samsung Electronics' air conditioning systems. Moreover, the system performs advanced HVAC energy consumption analysis, optimizing the operation of centralized HVAC systems and air conditioners to maintain comfort while reducing energy consumption.

Integrated control for VRF

Building automation control

Energy commissioning

VRF - integrated control

- Comprehensive control and monitoring of 497 outdoor units and 3,315 indoor units.

Integrated VAV (Variable air volume) control

- Integrated control and monitoring of 1,508 VAV.

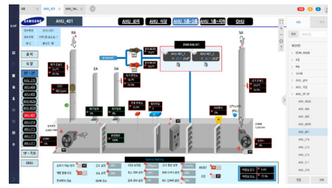
BAS integration

- Comprehensive integration of HVAC (direct expansion HVAC systems, fans), thermal sources (absorption chillers, turbo chillers, heat exchangers, boilers), and utilities (compressors, coolers, etc.).

Integrated HVAC energy management

- Optimized control of HVAC and VRF to reduce energy consumption.

Floor plan

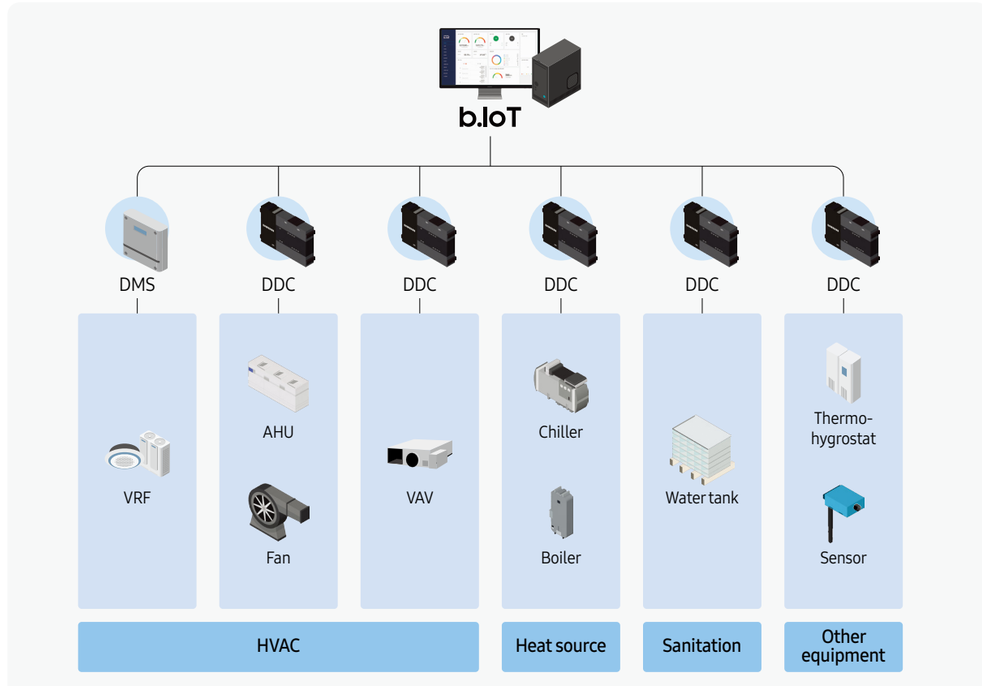


AHU

VRF

System configuration

- HVAC (EHP, AHU) supplied and installed by Samsung Electronics



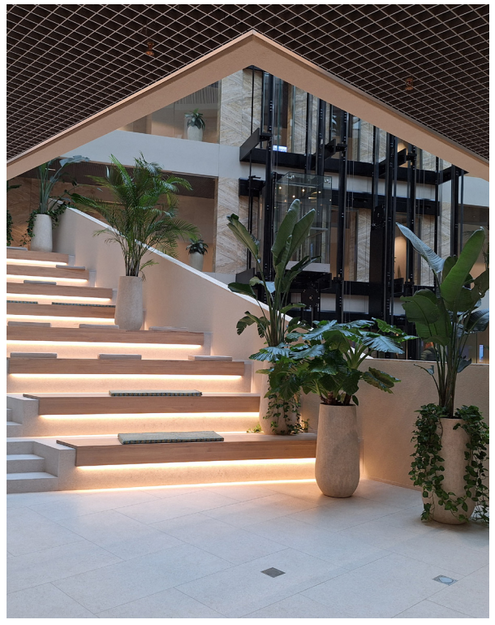
- VRF: Variable Refrigerant Flow

Integrated automation control solution for office buildings

TELTONIKA Headquarters

TELTONIKA, a leading Lithuanian manufacturer of wireless communication and IoT devices, has its headquarters located in Vilnius, the capital of Lithuania. The building, designed with sustainability in mind, spans 18,000m² and adheres to the international standards of the BREEAM (Building Research Establishment Environmental Assessment Method). b.IoT seamlessly connects Samsung Electronics' centralized AC system, a variety of HVAC systems, mechanical equipment, lighting, and blinds. This enables optimized energy usage, creating an environmentally friendly and energy-efficient building.

Integrated control for VRF



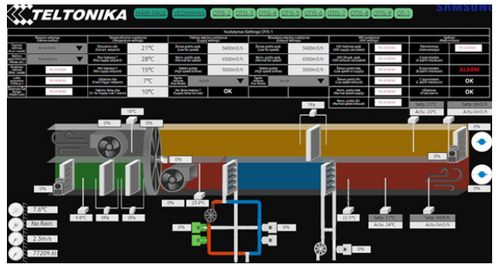
Building automation control

VRF - integrated control

- Integrated control and monitoring of Samsung Electronics outdoor and indoor units

BAS integration

- Integrated control of HVAC systems (AHU, fans, etc.), lighting/blinds, energy (electricity, water, heat), and utilities (generator, sewer, etc.).

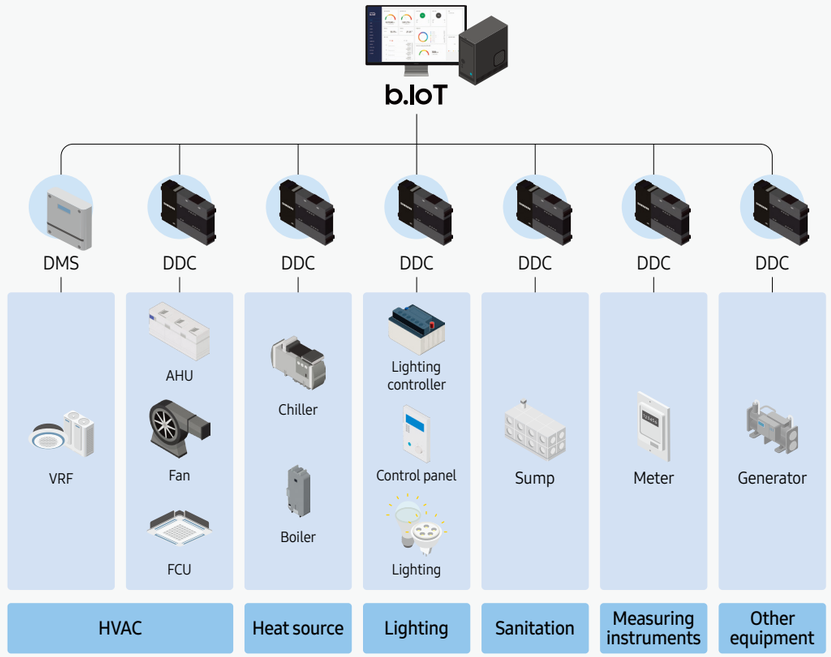


AHU

VRF

System configuration

- HVAC (EHP) supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Smart building integration system for office complexes

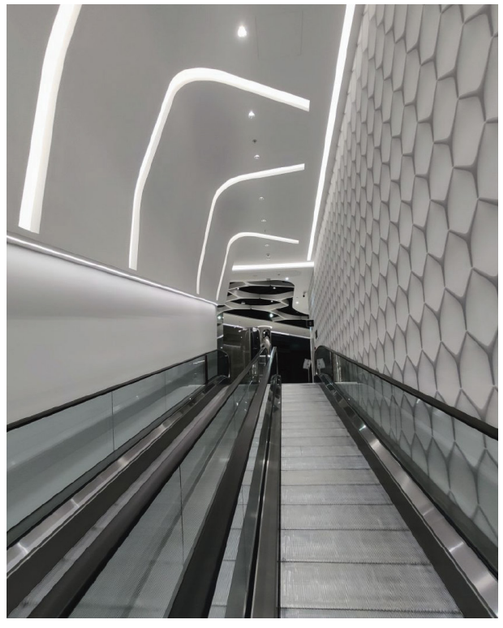
The Warsaw Hub

The Warsaw Hub is a multifunctional office complex in Warsaw, Poland, combining office spaces, collaboration hubs, and hotels. The two connected towers, standing at 130m and 86m respectively, house advanced building management systems, including Samsung's DVM S Water for centralized cooling. A total of 2,101 indoor units have been installed throughout the building, ensuring seamless integration with a variety of systems.
Samsung's b.IoT solution was used here to enable efficient monitoring and control of the HVAC systems, optimizing energy use and providing ease of operation. Samsung's cutting-edge algorithm-driven system meets the demands of large-scale centralized AC systems while simultaneously achieving energy efficiency.

Integrated control for VRF

Power consumption distribution per tenants

Reduced energy consumption

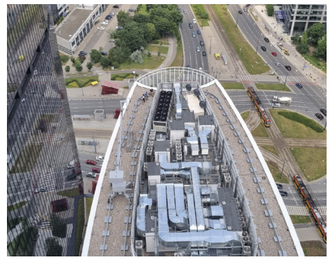


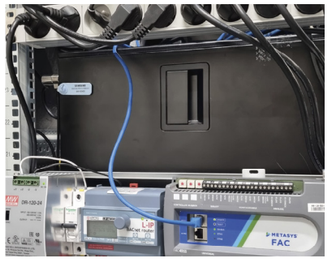
VRF - integrated control

- Integrated control and monitoring of 79 outdoor units and 2,101 indoor units across three buildings

Power consumption distribution per tenants

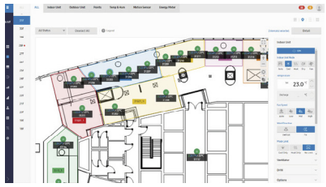
- Power distribution system integrated into water-cooled air conditioning to charge tenants based on power consumption
*The algorithm ensures fair distribution of power costs for cooling towers, chillers, and pumps, proportionate to actual air conditioner usage.



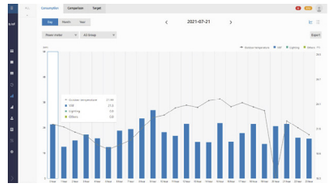


Dashboard

VRF system

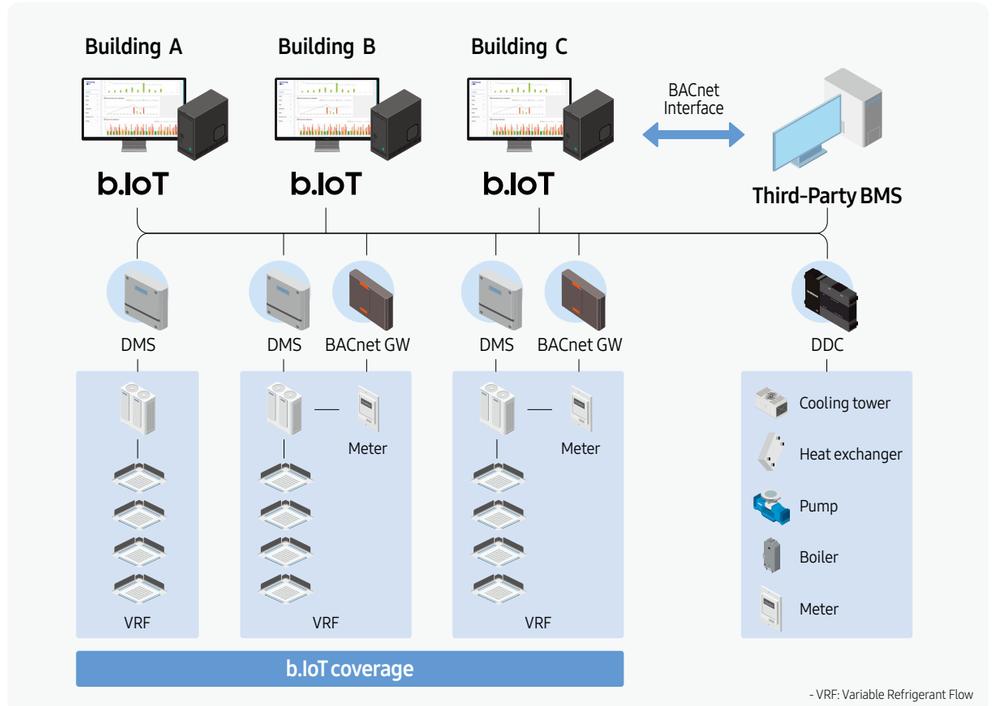


Power consumption



System configuration

- HVAC (DVM Water) & VRF supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Integrated solution for managing multi-purpose facilities

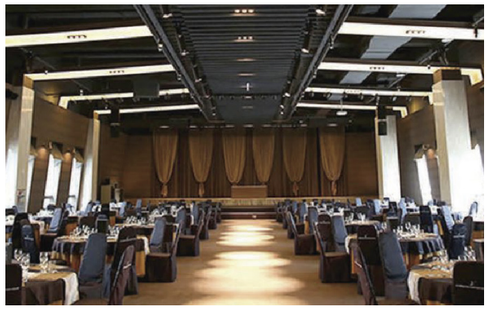
Daegu Samsung Creative Campus

The Daegu Samsung Creative Campus is an expansive office complex with a total floor area of 36,465 square meters (approximately 11,033 pyeong), completed in April 2017. Designed to cater to a variety of needs, it features cultural and retail facilities such as the Samsung zone, atelier zone, and community zone. It also accommodates the Creative Economy Innovation Center, alongside a variety of venture companies and commercial spaces. The campus leverages Samsung's b.IoT technology to provide an optimized integrated building management solution, setting a new benchmark for future building management innovations.

Integrated BAS

Energy savings through comfort control

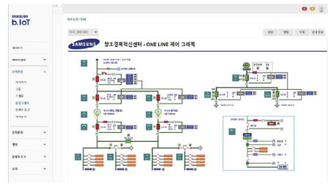
Power consumption distribution per tenants



BAS integration

- Integration of equipment automation, power control, and lighting control systems
- Interoperability with third-party controllers and upper-tier SI systems through b.IoT utilizing BACnet Client-Server functionality

VRF

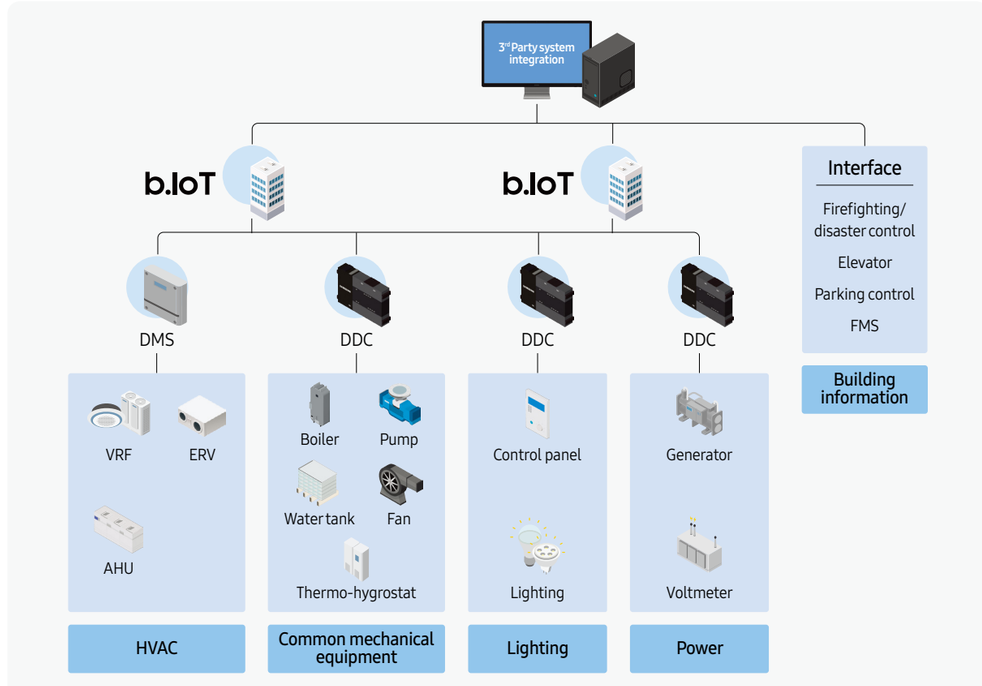


Power monitoring

Boiler

System configuration

- HVAC (EHP, ERV, AHU), wired/wireless CCTV, lighting, SI, FMS, Building information, and lighting, power, and automation control supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Efficient management solution for large buildings

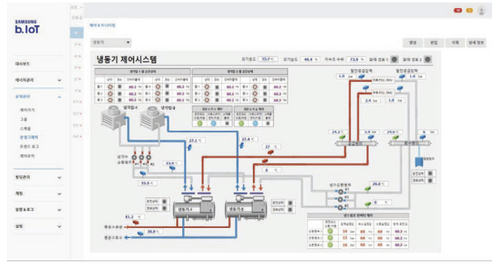
Sejong Finance Center II

Sejong Finance Center II is a large building consisting of office and retail facilities, spanning 52,890m² across 10 above-ground floors and 4 underground floors. Key facilities, including Samsung FCUs, heat exchangers, cooling towers, chillers, AHUs, exhaust fans, and stormwater drainage systems, have been installed. To ensure seamless management and integrated operation of this expansive building, a dedicated building automation system (BAS) was needed.
To achieve this goal, Samsung b.IoT technology has been applied to facilitate the smooth integration and operation of the building's mechanical systems.

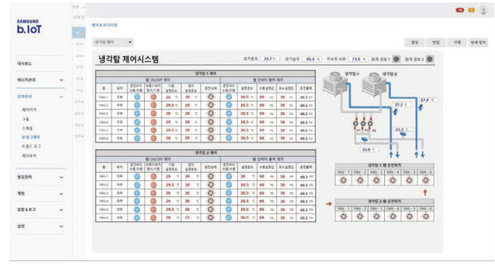
Integrated BAS

BAS integration

- Monitoring and control of mechanical equipment such as FCU, OAC, chillers, cooling towers, water tanks, and exhaust tanks.



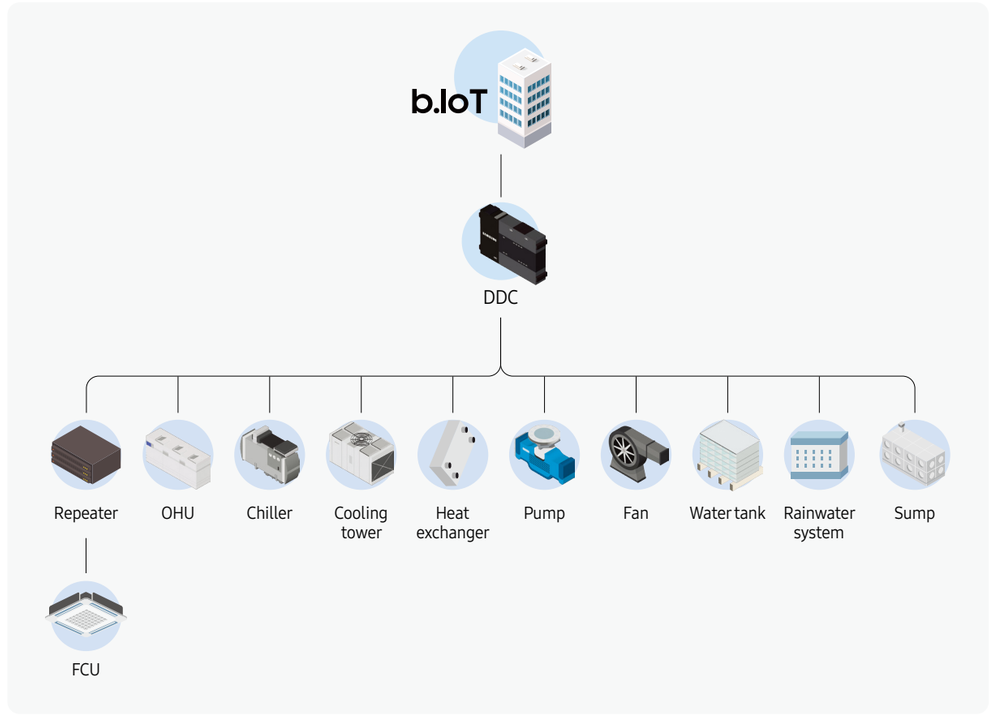
Chiller



Cooling tower

System configuration

- HVAC(FCU) & automated control supplied and installed by Samsung Electronics



Integrated facility management solution for campus building management

Sungkyunkwan University 600th Anniversary Hall

The 600th Anniversary Memorial Hall at Sungkyunkwan University, located on the university's Humanities and Social Sciences Campus in Jongno-gu, Seoul, was built in 1998 to commemorate the university's 600th anniversary. Currently serving as the main university building, the hall is designed not only for office use but also to house a variety of spaces such as large halls, museums, dining facilities, and fitness centers. Samsung b.IoT integrates the building's systems, enabling seamless operation of a variety of mechanical facilities while maintaining an optimized and comfortable environment.

Integrated control for VRF

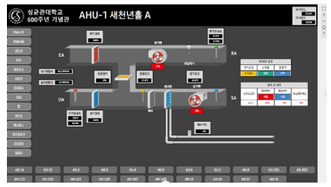
Building automation control

VRF - integrated control

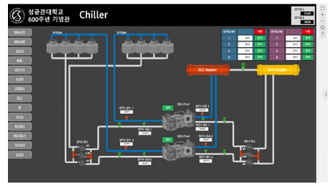
- Centralized control and monitoring of Samsung Electronics' indoor and outdoor units.

Building energy management system (BEMS)

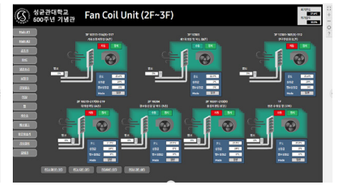
- Integrated control of HVAC (AHU, fans, etc.), thermal systems (heat exchangers, boilers, etc.), and utilities (compressors, coolers, etc.).



AHU



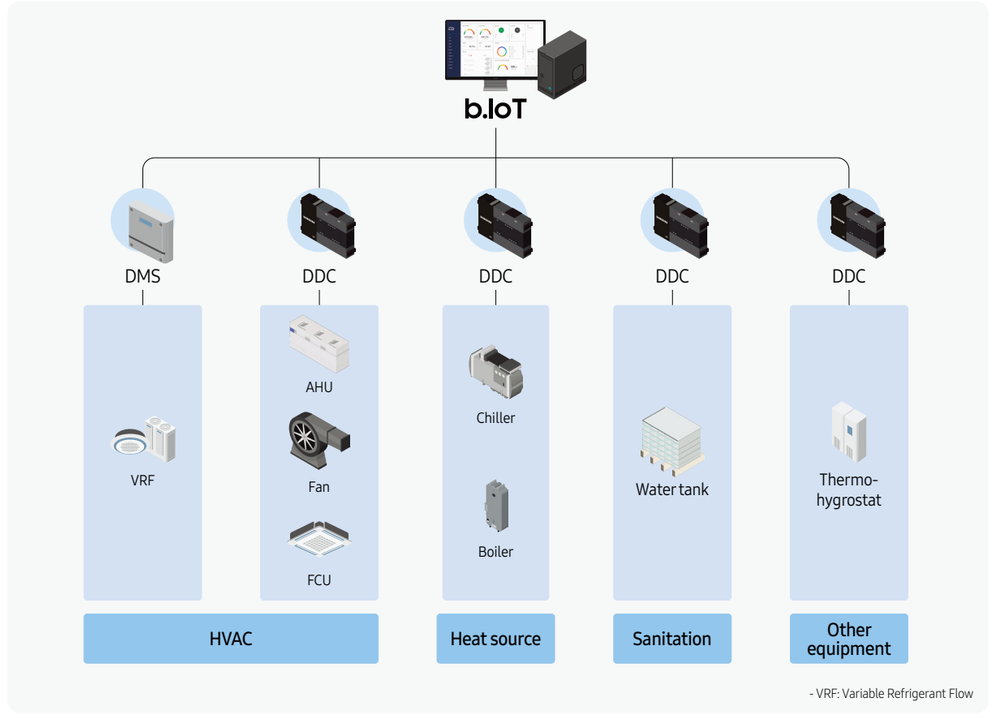
Chiller-heater



FCU

System configuration

- HVAC(EHP) supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Integrated solution for managing a big university campus

Chonnam National University

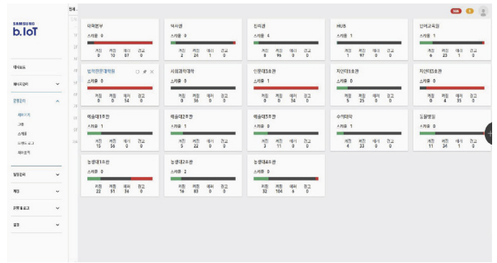
As a leading national university in Honam, Chonnam National University manages a wide range of facilities to ensure students enjoy a safe and convenient campus life. These include heating and cooling systems, sanitation facilities, network infrastructure, and security-enhancing CCTV systems. Samsung b.IoT has equipped the university's Gwangju Yongbong Campus with centralized management systems for over 1,000 indoor units across 18 buildings. This infrastructure allows for integrated control to optimize utility services on campus. Furthermore, the university signed an MOU aimed at building a smart campus, collaborating on air quality management and energy-saving initiatives utilizing a variety of IoT solutions.

Integrated BAS

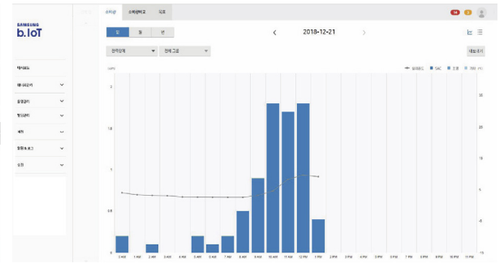
Collaborating on IoT solutions

BAS integration

- Integrated monitoring and control of approximately 1,100 Samsung centralized AC systems across 18 buildings
- Management of mechanical equipment such as ventilators, fans, and pumps, along with geothermal heating control panels



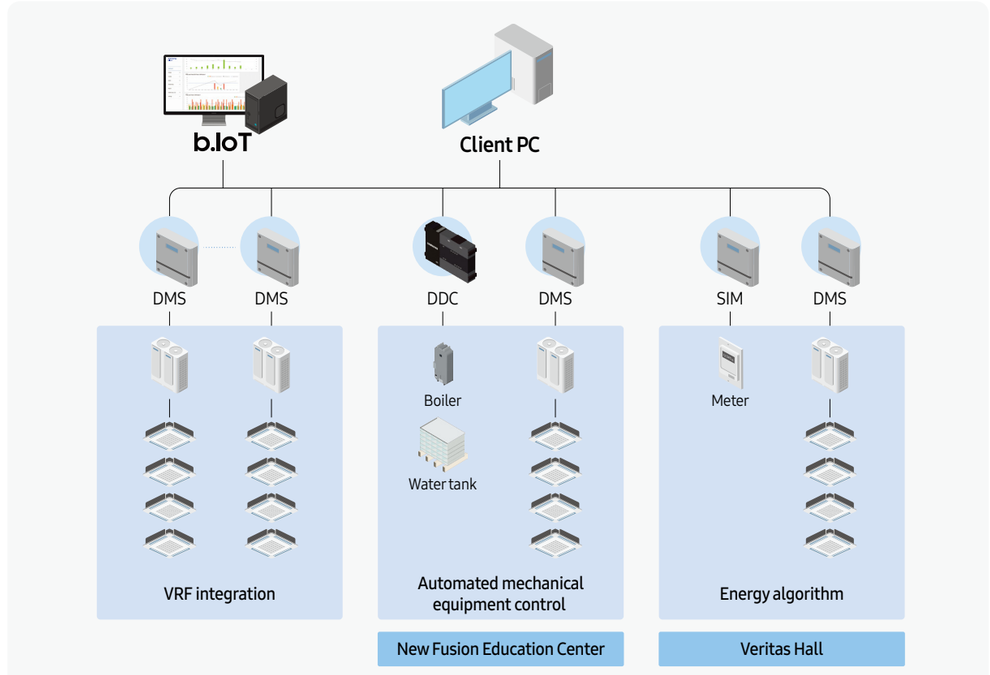
Group management



Power

System configuration

- Automated control supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

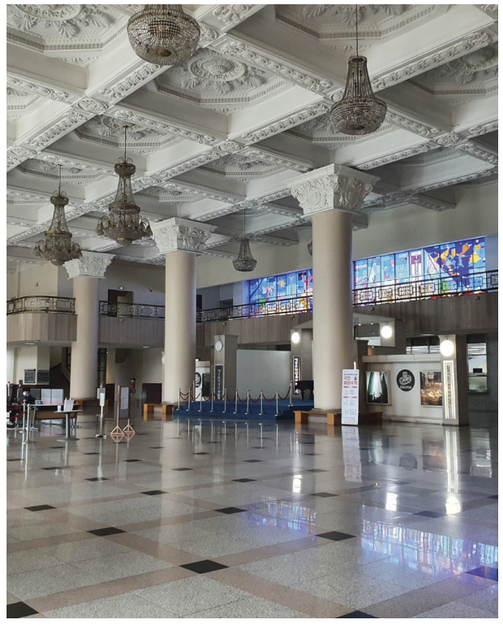
Integrated energy management solution for buildings

Kyung Hee University

Kyung Hee University's Central Library and College of Engineering, located on the international campus in Suwon, utilize Samsung's b.IoT solutions for integrated VRF control. The b.IoT solution not only manages AC systems but also tracks the operating data of chillers and boilers, as well as the energy consumption (electricity and gas) of related devices. This data is transferred to the building energy management system (BEMS), which monitors and analyzes energy usage at the Central Library for effective management. With the achievement of BEMS Level 2 certification in November 2019, this system is positioned to expand its scope to include newly constructed or renovated university buildings, seamlessly connecting building systems with b.IoT for integrated control and operation.

Integrated control for VRF

BEMS level 2 certified

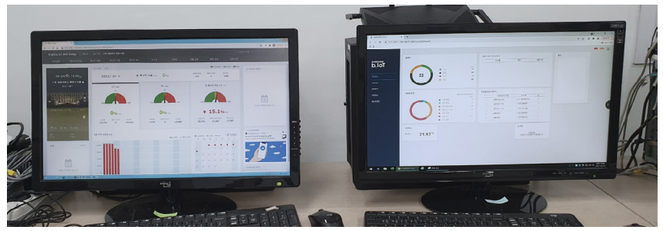


VRF - integrated control

- Monitors and controls 35 EHP units in the Central Library and 83 GHP units in the College of Engineering.

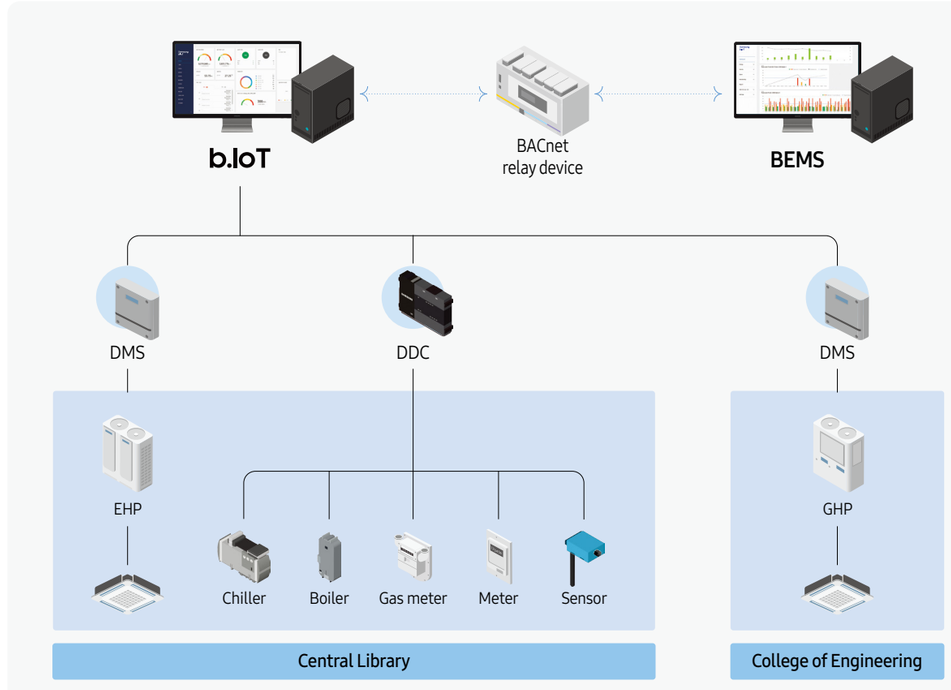
Building energy management system (BEMS)

- Tracks and analyzes the energy consumption (electricity, gas) of AC systems, chillers, and boilers.



System configuration

- HVAC (EHP, GHP), VRF, BEMS supplied and installed by Samsung Electronics



Integrated solution for optimized guest comfort and efficient facility management

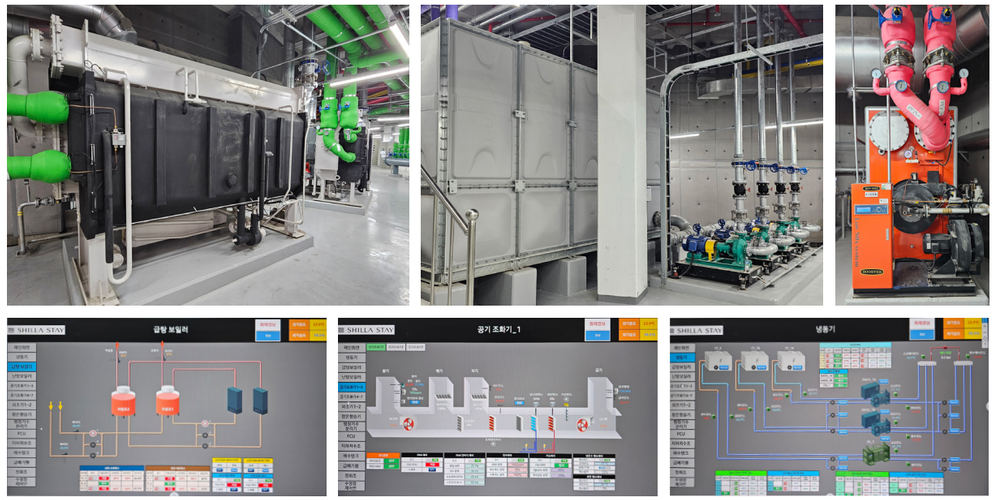
Shilla Stay Plus Ihotewoo

Shilla Stay Plus Jeju Ihotewoo, the 15th addition to the Shilla Stay brand, is the first resort-style hotel in the Shilla Stay lineup. Located directly in front of Jeju's basalt beach, the hotel is designed to cater to family travelers, offering a variety of room types and leisure amenities. With Samsung b.IoT technology, the hotel ensures an optimal guest experience by seamlessly managing the air conditioning and mechanical systems throughout the premises, keeping the ocean-facing rooms comfortable at all times. The outdoor pool, a signature feature of the hotel, is consistently monitored to maintain its cleanliness and appeal.

Building automation control

BAS integration

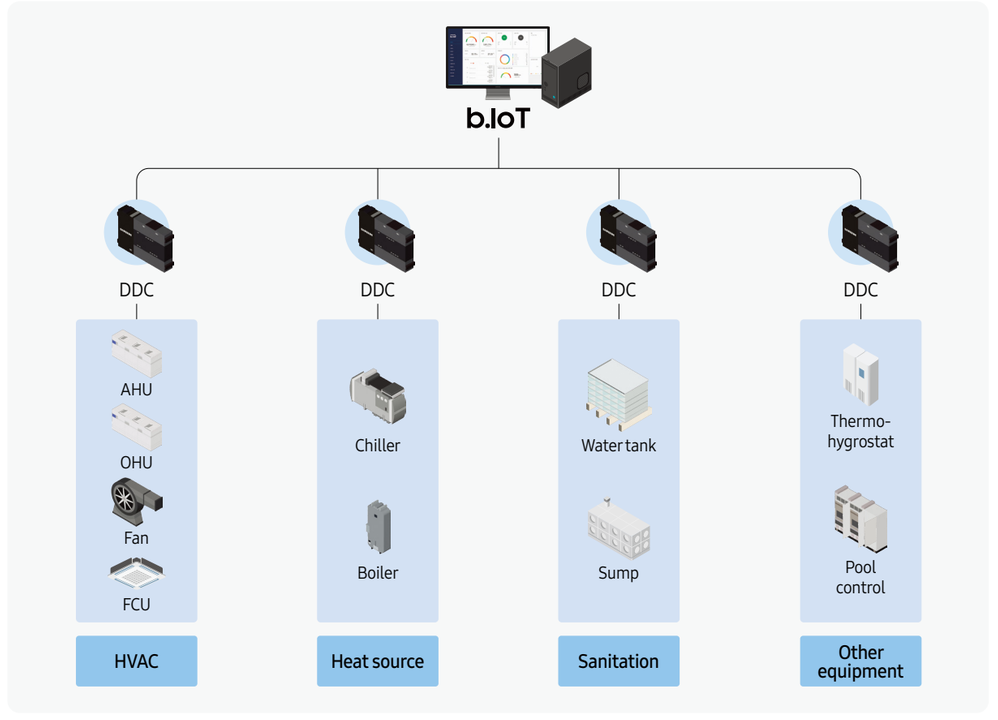
- Integrated control of HVAC (chiller, AHU, FCU, FAN) and utlities (boiler, water tank).



Boiler AHU Chiller

System configuration

- HVAC (EHP, ERV) supplied and installed by Samsung Electronics

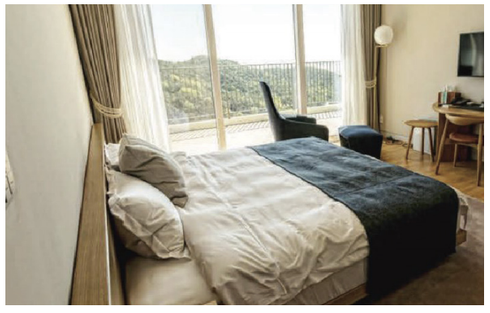


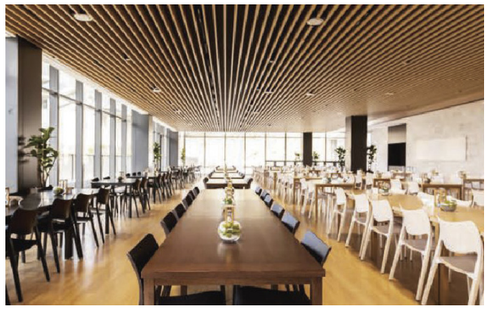
Integrated solution for optimized guest comfort
and management of a variety of facilities

Yeongdeok Training Center

The Yeongdeok Training Center, located in Yeongdeok County, Gyeongbuk Province, spans a total area of 27,720 m², comprising two conference buildings, two dormitory buildings, and one building for cafeteria and stores.
The center incorporates a variety of systems and equipment, including centralized air conditioning, HVAC, LED lighting, Hotel TV, and signage, alongside integrated solutions such as BAS, SI, and FMS for efficient facility management.
Samsung b.IoT has seamlessly integrated systems for facility automation, power management, and lighting control to optimize the operation of diverse spaces at the Yeongdeok Training Center, including accommodations, dining facilities, and meditation rooms.

Integrated BAS





BAS integration

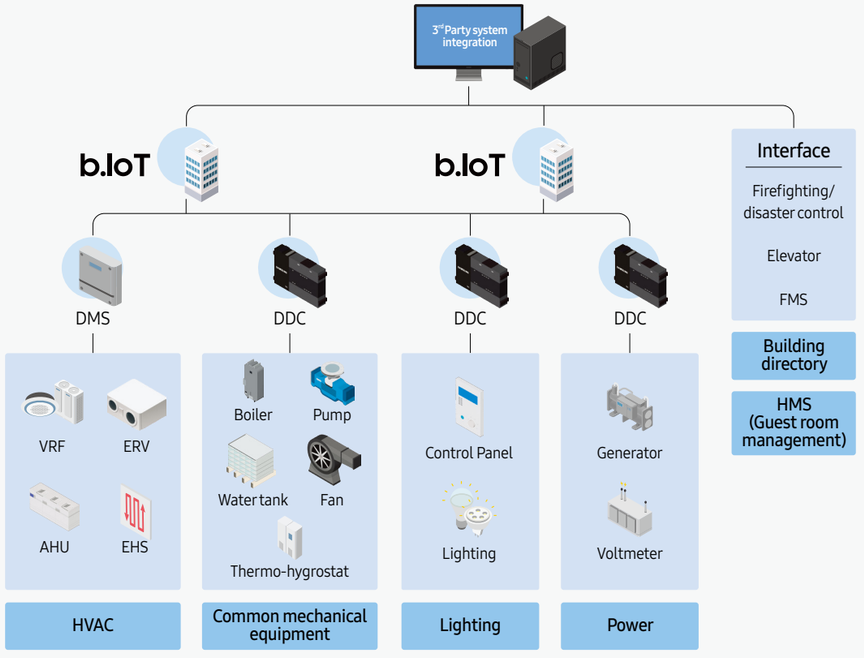
- Integration of facility automation, power control, and lighting control systems
- Collaboration with upper-level SI and b.IoT-powered 3rd party controllers using BACnet Client-Server functionality

Sewer system

VRF

System configuration

- HVAC (EHP, ERV, AHU), wired/wireless CCTV, lighting, HMS, SI, FMS, building directory, Power, and automation control supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Integrated facility management solution for factories of small and medium-sized enterprises

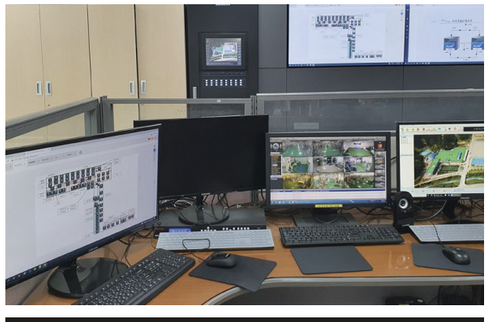
Shinwha Intertek

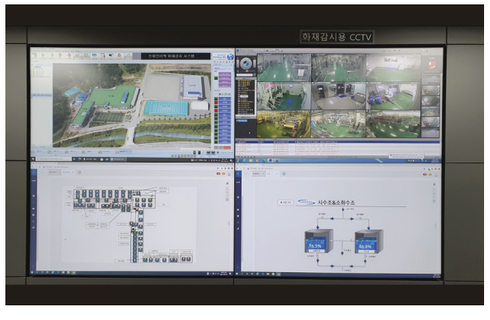
Shinhwa Intertek, located in Cheonan, is a partner of Samsung Electronics' TV Division and an affiliate of the Hyosung Group, specializing in the production of optical film. Previously, the HVAC systems installed throughout the building were controlled individually by employees using separate remotes. However, Shinhwa Intertek has implemented an integrated remote control and monitoring system. In the past, operators had to climb to the rooftop multiple times a day to manually inspect the operational status of equipment such as air conditioners, air compressors, and boilers. Now, these systems can be monitored remotely through the b.IoT solution. Additionally, the company has reduced the energy consumption of the HVAC system by leveraging the energy optimization algorithms provided by b.IoT.

Integrated control for VRF

Utility & power monitoring

Reduced energy consumption





VRF - integrated control

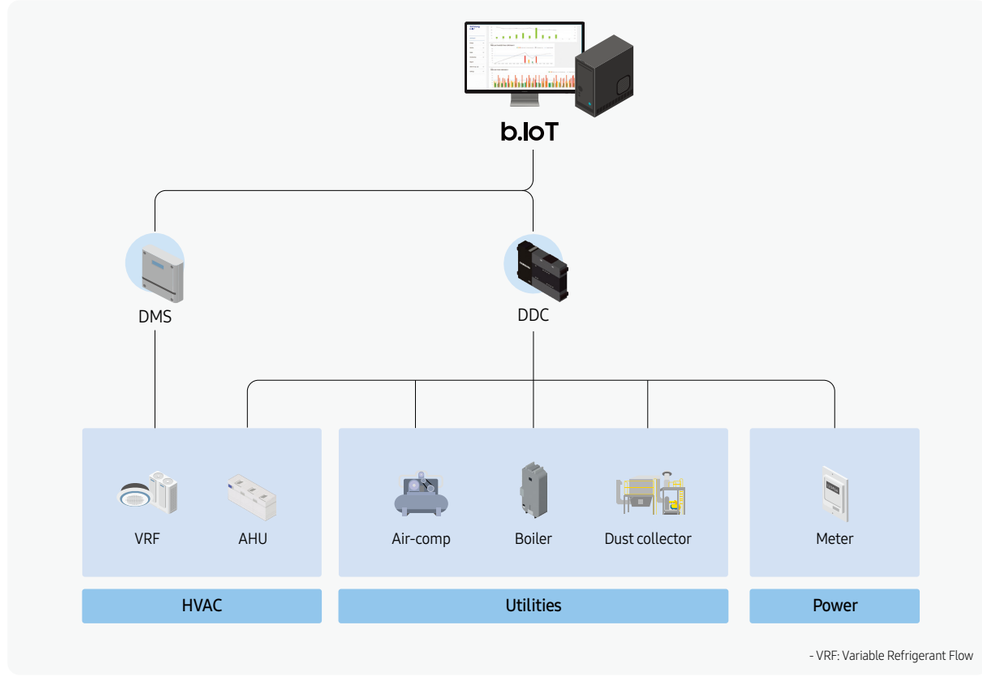
- Centralized control of 104 indoor units across multiple buildings from the office.

Factory utility and power monitoring

- Monitoring 6 air compressors, 9 boilers, and 5 dust collectors.

System configuration

- HVAC (EHP) / VRF control, utility and power monitoring supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Customized energy management solutions for a variety of facility operations in mega manufacturing plants

Samsung Electronics Poland Factory

Samsung Electronics' Poland factory is a home appliance manufacturing site located in Wronki.
Spanning a total floor area of 145,030m², it serves as a massive production hub, supplying the majority of Samsung's European home appliances, including refrigerators and washing machines. The facility comprises eight buildings, each equipped with HVAC systems, centralized AC units, heat sources, and utilities. All these systems are integrated and managed through Samsung's b.IoT platform. Additionally, the plant's HVAC and centralized AC systems are also integrated into the energy management system, ensuring optimal energy consumption and contributing to significant reductions in operational costs.

Integrated control for VRF

Building automation control

Energy commissioning

VRF - integrated control

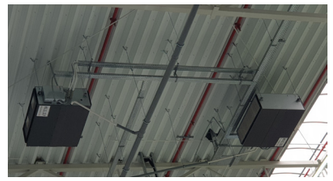
- Centralized control and monitoring of 272 outdoor units and 473 indoor units across seven buildings.

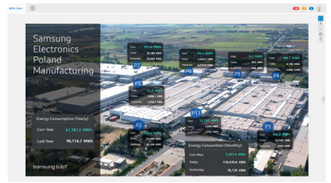
BAS integration

- Comprehensive management of HVAC systems (AHU, fans, etc.), heat sources (heat exchangers, boilers, etc.), and utilities (compressors, coolers, etc.).

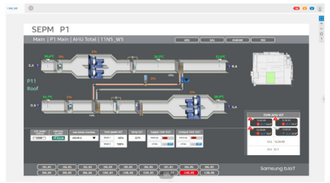
Integrated HVAC energy management

- Optimal control of HVAC and VRF to achieve HVAC system energy savings.

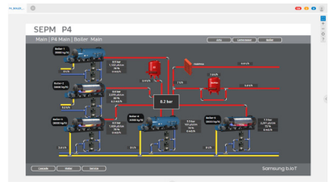




Energy



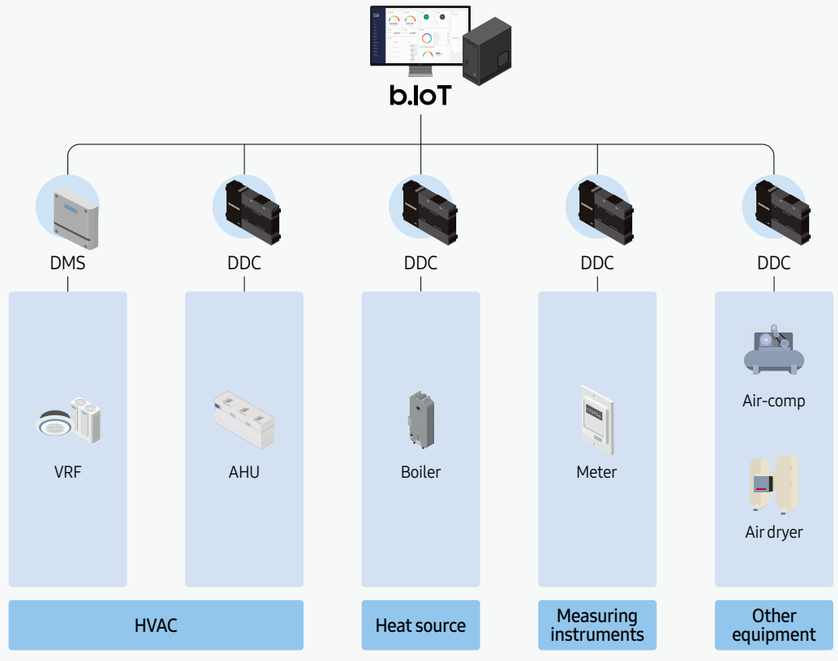
AHU



Boiler

System configuration

- HVAC (EHP, AHU) supplied and installed by Samsung Electronics



- VRF: Variable Refrigerant Flow

Monitoring solution for factory manufacturing environments and facilities

Samsung Electronics Gwangju Plant 3

Samsung Electronics' Gwangju Plant 3, a massive factory located in the Gwangju Industrial Complex, specializes in producing injection molding machines and presses for home appliances. The facility operates a variety of production equipment such as injection molding machines, motors, presses, and air compressors, alongside standard HVAC systems like direct-expansion air conditioners and refrigeration units. By implementing a b.IoT-based plant solution, the factory has optimized real-time monitoring and energy control to significantly reduce energy consumption. Additionally, the manufacturing lines maintain an optimal production environment by monitoring indoor conditions such as temperature, humidity, CO2 levels, and PM10 particles. The integration between the MES and b.IoT systems enables continuous monitoring of high-value production equipment, enhancing operational efficiency and ensuring seamless factory control.

BAS & FEMS integration

Manufacturing facility integration

Indoor environment monitoring

Integrated BAS/FEMS system

- Integration and control of 40 direct-expansion HVAC units and 80 indoor units
- Refrigeration equipment, air handling systems, and energy metering

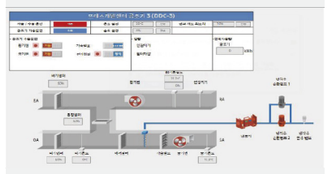
Production equipment monitoring

- Continuous monitoring of milling machines, press systems, injection molding machines, and compressors through MES-b.IoT integration

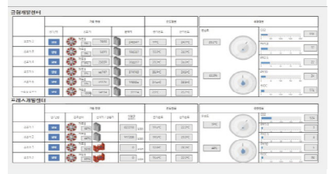
Indoor environment monitoring and ventilation control

- Monitors the indoor environment of manufacturing lines (temperature, humidity, CO2, PM10) to maintain a comfortable and optimal manufacturing environment.

HVAC equipment



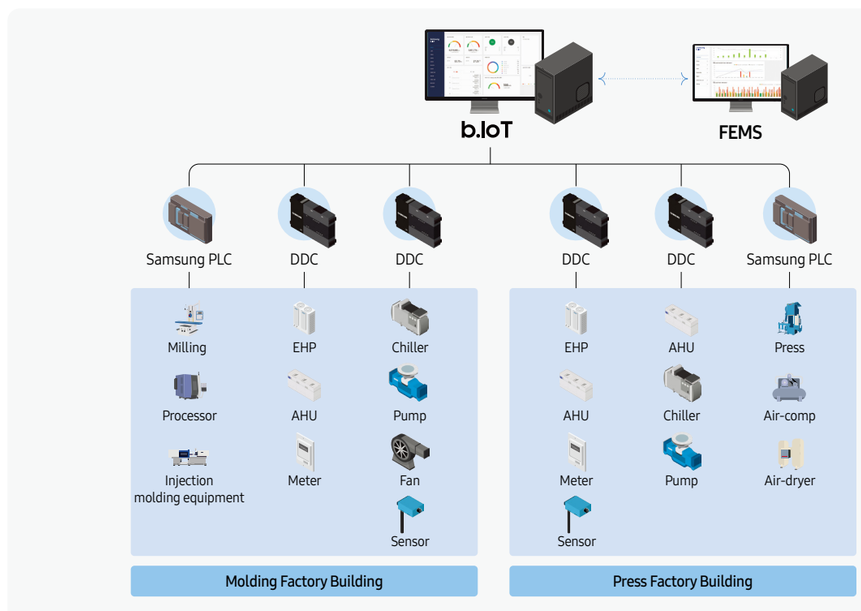
HVAC equipment



Environment monitoring

System configuration

- HVAC (EHP, AHU, refigeration machine, pump)/ integrated facility control, FEMS, production facility (MES) integration supplied and installed by Samsung Electronics



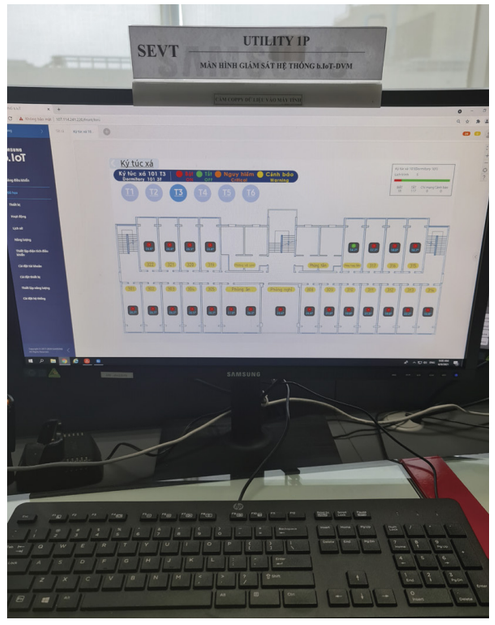
HVAC energy optimization solution suitable for a variety of spaces in mega factory complexes

Samsung Electronics Vietnam Factory

Samsung Electronics' Vietnam factory, located in Hanoi, is the world's largest smartphone manufacturing facility. The site, encompassing 20 buildings, integrates a total of over 5,900 system air conditioners managed through DMS, enabling centralized monitoring via the b.IoT platform. Through an intermediary server, data from central HVAC equipment (chillers, cooling towers, and air handlers) controlled by FMCS is synchronized with b.IoT. Using this data, this system leverages energy optimization algorithms for system air conditioners and central HVAC systems, significantly reducing the factory's energy consumption.

Integrated control for VRF

Energy optimization for HVAC systems



VRF - integrated control

- Monitors and controls 446 outdoor units and 5,929 indoor units installed across 20 buildings within the factory.

Energy optimization for HVAC systems

- Synchronizes data from central HVAC equipment managed by FMCS with b.IoT. Uses the data to implement energy optimization algorithms for system air conditioners and central HVAC systems to enhance energy efficiency.

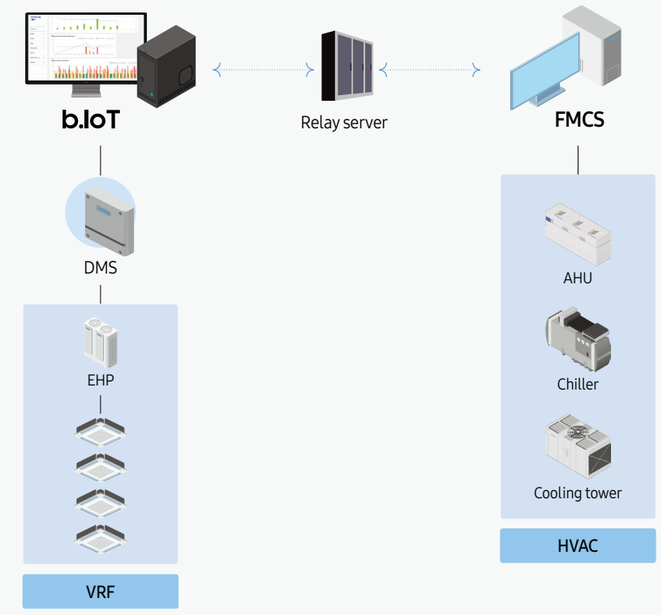
Factory complex map

Dashboard

Indoor unit operating status

System configuration

- HVAC (EHP)/ centralized AC system control integration supplied and installed by Samsung Electronics



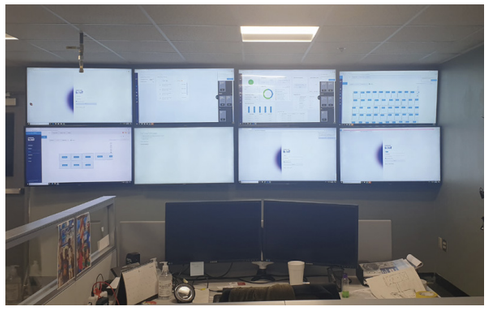
- VRF: Variable Refrigerant Flow

Solution integrating and managing a variety
of mechanical equipment in mega factory complexes

Samsung Electronics North America Factory

Samsung Electronics' North American appliance factory is located in Newberry, South Carolina. The factory integrates and monitors 318 pieces of equipment, including distributed system air conditioners installed across multiple buildings within the complex, through its b.IoT platform. To centralize the management of equipment from a variety of manufacturers, these devices are connected to the b.IoT solution via BACnet and MODBUS protocols. Additionally, the factory employs b.IoT's VRF and HVAC energy optimization algorithms, effectively reducing its power consumption.

Integrated BAS



BAS integration

- Control and monitor 318 pieces of equipment, including VRF, using BACnet and Modbus protocols.
- Mechanical equipment: Air compressors, air dryers, chillers, cooling towers, VAVs, RTUs, GMUs, boilers, generators, water tanks, fans, etc.
- Power equipment monitoring (switchboards/distribution panels)

Rooftop unit

Factory complex map

Refrigeration equipment

System configuration

- HVAC (DLHP) / Mechanical equipment automation control, power monitoring supplied and installed by Samsung Electronics