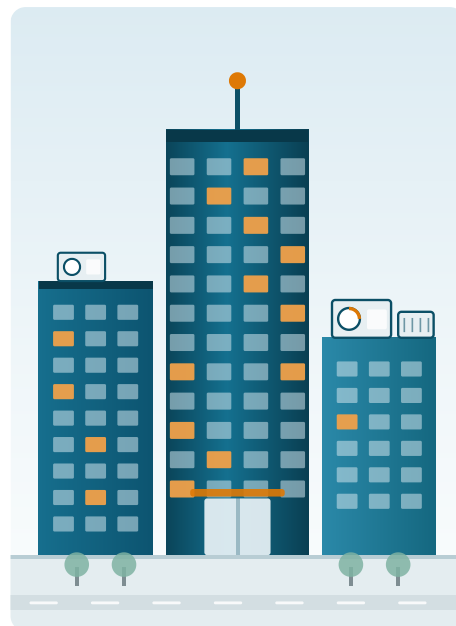


BMS & AI ANALYTICS SOFTWARE

SmartNova 5.2

SmartNova 5.2 is the EnSmart building management and AI analytics software platform. It runs on a server inside the building — no cloud service is required — and presents every connected system through a web browser, so operators, engineers and management work from the same live data on a PC, tablet or phone.

One platform covers graphics, schedules, alarms, trends and reports for HVAC and plant, the Nova AI analytics engine, and energy management with tenant billing. Open BACnet/IP, Modbus and MQTT interfaces let SmartNova supervise EnSmart controllers and third-party equipment from any vendor in one system.



Web-based No client software to install	AI analytics Predict · score · forecast · detect	24–72 hrs Fault prediction window	Energy savings Verified from live site data	100 % on-site No cloud dependency
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FEATURES & BENEFITS

- One platform for HVAC supervision, energy, alarms, reporting and billing
- Browser-based interface — any PC, tablet or phone, no client licence per desk
- Live 3D plant graphics: AHU, TFA, chiller and plant status with commandable setpoints
- Nova AI analytics — predictive maintenance, efficiency scoring, forecasting and anomaly detection
- AI runs on the site server; no building data leaves the premises
- Multi-level alarms with email and SMS escalation
- Weekly time schedules per system, with weekend, holiday and exception days
- Energy dashboards for EB, DG, BTU and water metering, with carbon reporting
- Tenant billing — tariffs, invoices and common-area apportionment
- Open integration with third-party BMS panels, meters, VFDs and chillers
- 21 CFR Part 11 audit trails for pharma and other regulated facilities

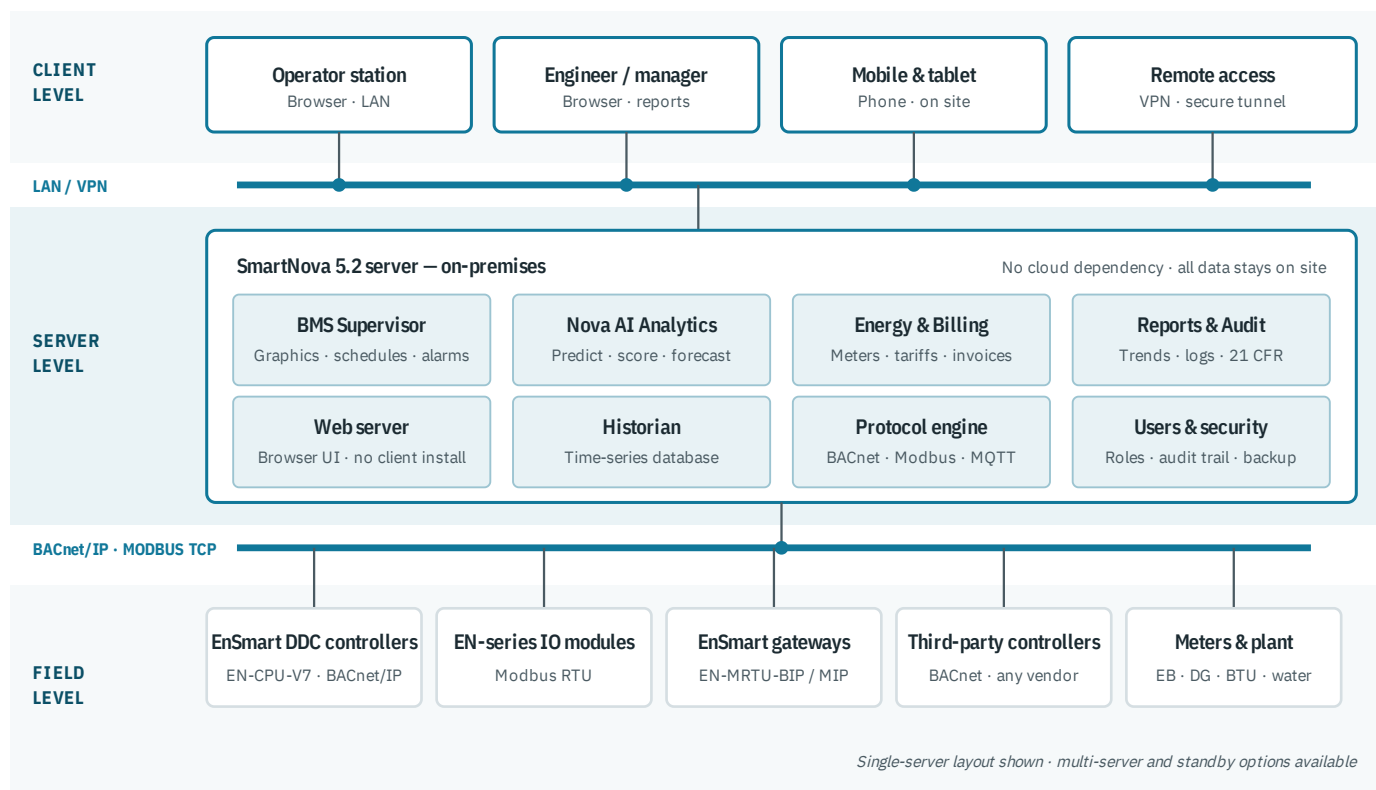
APPLICATIONS

Commercial & IT parks AHU, TFA and chiller plant across floors, blocks and tenants	Pharma & healthcare Cleanroom monitoring, validated records and 21 CFR Part 11 audit trails	Data centres & industrial Critical plant monitoring, energy accounting and alarm escalation	Campus & portfolio Several buildings or sites operated from one dashboard
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Typical sectors: Commercial buildings · IT parks · Pharmaceutical · Healthcare · Data centres · Industrial · Retail · Education

SYSTEM ARCHITECTURE & DEPLOYMENT

SmartNova has a server / browser-client architecture. One on-premises server holds the real-time database, the historian and the application modules; every user connects to it with a standard web browser, so there is no client software to install and no per-seat client licence.



DEPLOYMENT OPTIONS

Single-server site One server runs the supervisor, AI analytics, energy and billing modules for a complete building.	Multi-site / campus A server in each building, with a central dashboard that aggregates all of them.	Standby server A second server held as a hot standby where continuous operation is contracted — quoted as an addition.
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HOW THE LAYERS WORK

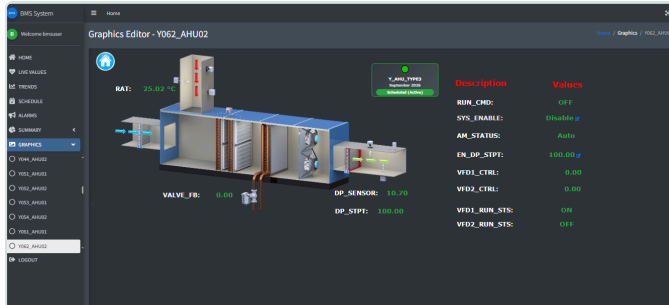
- Client level — browsers on operator stations, engineering PCs, tablets and phones; remote users connect over the customer's VPN.
- Server level — web server, protocol engine, time-series historian, AI analytics engine, energy and billing modules, and the user and audit database.
- Field level — EnSmart EN-CPU-V7 controllers and EN-series IO modules, EN-MRTU gateways, and third-party BACnet or Modbus equipment.
- The protocol engine polls the field continuously and writes every configured point to the historian.

DESIGN PRINCIPLES

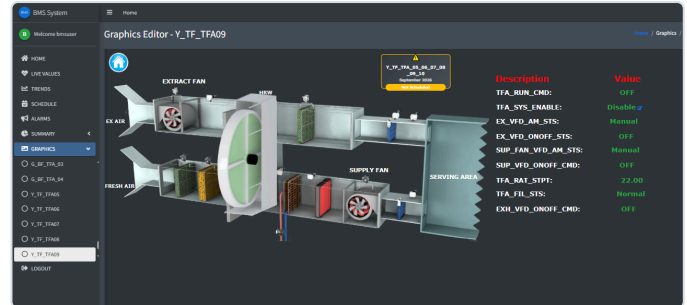
- Analytics and reports read from the historian, so they never add traffic to the field network.
- Commands are written back to the controller; local control logic stays in the controller, not in the server.
- A server outage stops supervision, logging and analytics — plant keeps running on controller logic.
- Installed on the customer's own on-premises server; no internet connection is needed for any function.
- Server sizing follows the point count and logging interval set in the system specification — see System requirements.

OPERATOR INTERFACE, GRAPHICS & SCHEDULING

Operators work from live plant graphics rather than point lists. Each system has its own page showing the real equipment — fans, coils, filters, wheels, valves, and VFDs — with live values beside it and the commandable parameters marked for editing.



AHU graphic — return air temperature, filter DP, valve feedback, VFD control and run status, with the active schedule shown top right



TFA graphic with heat recovery wheel — supply and extract fan status, auto/manual state, filter status and setpoint

WHAT THE OPERATOR SEES

- Fixed left menu: Home, Live Values, Trends, Schedule, Alarms, Summary and Graphics, with every system listed for one-click access.
- Home dashboard with server health, quick navigation and the signed-in user and role.
- Graphics page per AHU, TFA, chiller, plant room or floor, drawn to the site's actual equipment.
- Live values in the graphic: RAT, setpoints, DP sensor and setpoint, valve feedback, VFD control and run status, auto/manual state.
- Schedule state shown on the graphic — scheduled and active, or not scheduled.

COMMANDING & ACCESS

- Editable parameters are marked in the graphic — system enable, setpoints and mode are changed in place and confirmed.
- Every command is written to the controller and recorded against the user in the audit log.
- Setpoint changes can be made from a phone on site — no trip back to the BMS room.
- Responsive layout — the same pages work on tablet and phone; there is no separate app to install.
- Landing page and visible menu follow the user's role.

USERS & ROLES

Operator	Engineer	Manager	Administrator
Monitors plant, acknowledges alarms and changes setpoints within limits	Edits schedules, thresholds and graphics; configures points and systems	Dashboards, energy and ROI reports; read-only view of plant	User accounts, roles, audit log and system settings

TIME SCHEDULES

- Weekly schedule with start and stop times; several datapoints can share one schedule
- Weekend and holiday profiles, plus exception days for shutdowns
- Plant starts ahead of occupancy so spaces reach setpoint before the first shift
- Schedule changes are logged with the user name and time
- AI pre-cooling can shift start times to cut peak demand (see Nova AI analytics)
- Manual override from the graphic — the override is released by the operator, not on a timer

— ALARM & EVENT MANAGEMENT

Alarms are configured per point and routed to the people who must act on them. Faults reach the team by email and SMS before occupants call — the single most common reason sites move from reactive to planned maintenance.

ALARM TYPES		
ALARM	RAISED WHEN	TYPICAL USE
High / low limit	A measured value crosses its configured limit	Room and duct temperature, humidity, pressure
High-high / low-low	A second, more severe limit is crossed	Cleanrooms and critical plant
Deviation	The value drifts from setpoint by more than the allowed band	AHU supply air and chilled water control
Rate of change	A value moves faster than the configured rate	Pressure loss, tank level
Status mismatch	Feedback does not match the command after the start delay	Fan, pump and damper failure
Communication failure	A controller or device stops responding	Device, cable or network fault
Sensor fault	A reading is out of range, stuck or flatlined	Cross-checked by the AI anomaly module
Filter / differential pressure	DP across the filter exceeds the set value	Filter change due
Manual override	A point is left in manual or overridden	Governance of operator actions

PRIORITY & ROUTING

- Two alarm levels — normal and critical — setting the colour and the routing of each alarm
- Alarm banner on every page, and an alarm review page filtered by system, state and time
- Email notification to a recipient list, as standard
- SMS notification available as a custom development, using the site's own SMS gateway or SIM
- Acknowledgement records the user, the timestamp and an optional comment
- All alarms are handled on one review page — there is no separate escalation queue

Alarm limits, delays and email recipients are configured per site during commissioning and can be changed by the engineer role without stopping the system.

EVENT LOG

- System events for operator commands, logins, setpoint and schedule edits, point state changes and alarm acknowledgements
- Alarm and event history kept for audit, filterable and exportable
- BMS alarms and Nova AI anomalies appear in the same list — one screen, no context switching
- Records cannot be edited from the interface; on regulated sites they are tamper-proof and timestamped

— TRENDS, HISTORICAL DATA & REPORTING

Every configured point is logged to the historian on the site server. Trends answer the day-to-day questions; the report set turns the same data into the documents the facility, finance and management teams need.

TRENDS

- Several points overlaid on one chart — no fixed limit; a limit can be set per site
- Period selection from a day to twelve months, with zoom on any window
- Live and historical data on the same chart
- Table of values alongside the graph, for exact readings
- Export to CSV or Excel for any point and period
- Trends have their own page, reached from the main menu

HISTORICAL DATA

Logging	Interval logging, or on change of value, per point
Default interval	15 minutes for analogue points; digital points on change of value
Storage	Time-series tables partitioned by month for fast retrieval
Retention	Online retention sized with the server disk
Archiving	Manual archive to storage the customer controls — no separate backup storage is supplied

STANDARD REPORTS

REPORT	CONTENTS	USED BY
Energy consumption	Consumption by day, month or year for any meter, system or tenant	Facility, finance
Tenant billing invoice	Metered consumption, tariff, charges and balance per tenant	Finance, billing
Alarm & event history	Alarms and operator actions over a period, filtered by system or priority	Facility, audit
Trend / point export	Raw logged values for selected points and period	Engineering
Equipment runtime	Run hours per fan, pump or plant item for maintenance planning	Maintenance
HVAC efficiency score	Score and component breakdown per AHU, with weekly trend	Facility, management
AI ROI business case	Monthly and annual value, system health and CO ₂ avoided	Management
Sensor anomaly	Anomalies by type and system, ranked by anomaly rate	Maintenance
Audit trail	Every configuration and command change with user and timestamp	QA, regulated sites
Air quality	CO ₂ , AQI and IAQ parameters against limits	Facility, HR
Thermal (BTU) & water	TR-h and kilolitre consumption per tenant or block	Finance

OUTPUT & DELIVERY

- On screen, in the browser
- Print and PDF
- XLS / CSV export
- Scheduled email to a recipient list
- Pulled by other systems over the REST API
- Custom formats built to the customer's own template

NOVA AI ANALYTICS – PREDICTIVE MAINTENANCE

Nova AI runs on the same on-premises server as the BMS and reads the historian. Nothing is sent to a cloud service, which is what makes it usable in pharma, defence and other restricted facilities. Four modules work on the data the BMS already collects – no extra sensors are needed.

1 • Predictive maintenance

Projects developing faults 24–72 hours ahead, and slow degradation weeks ahead

2 • Efficiency scoring

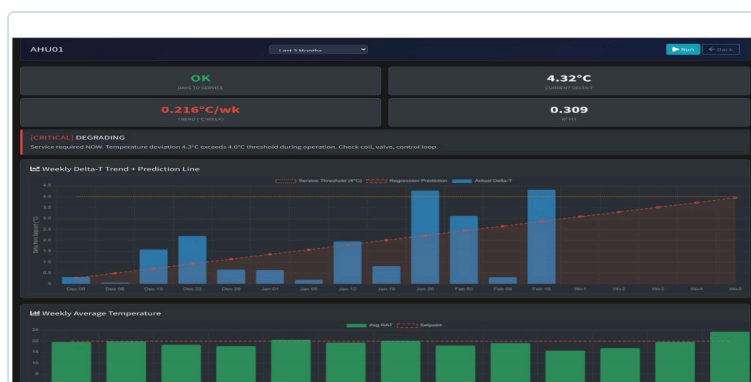
Scores every AHU out of 100 so the worst performers are fixed first

3 • Load forecasting

Learns the building's weekday and weekend patterns and forecasts 48 hours

4 • Anomaly detection

Finds stuck, spiking and overridden points among thousands of samples



Predictive maintenance — weekly delta-T trend with the regression prediction line and the current severity

WHAT THE SCREEN SHOWS

- Severity for the system: healthy, degrading or critical
- Current deviation against the configured threshold — for example 4.3 °C against a 4.0 °C limit
- Trend rate in °C per week, measured from the system's own history
- Weeks to critical, from the regression of that trend
- Weekly actual against predicted deviation, so the prediction can be checked
- A plain recommendation: service now, or service within 30 days

HOW IT WORKS

- Each plant item is assessed against its own history — no external model or shared training data
- The engine regresses the deviation trend and projects when it crosses the failure threshold
- Typical warning window is 24–72 hours for developing faults, and several weeks for slow degradation
- Systems are grouped by the datapoints assigned to each group, and reported group by group

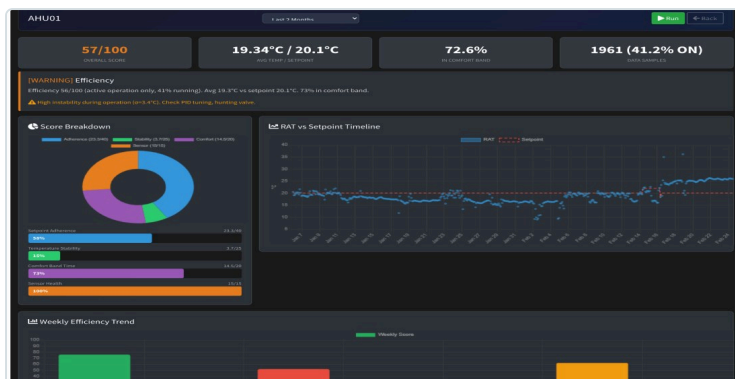
WHAT IT CHANGES

- Maintenance is scheduled in the same week, before occupants are affected
- Predicted failures appear in the normal alarm list — no separate tool to watch
- Emergency call-outs and unplanned downtime are avoided
- Live example: 4.3 °C deviation trending 0.216 °C per week, five weeks to critical, found before any complaint

WHAT THE AI NEEDS

REQUIREMENT	DETAIL
Sensors	None beyond the points the BMS already reads — temperature, status, valve and VFD feedback
History	Trends appear within a few hours of logging; longer history sharpens the prediction
Equipment	Works on EnSmart and third-party systems alike, as long as the points are supervised
Compute	Runs on the site server only
Output	Findings appear in the alarm list, the analytics pages and the ROI report

NOVA AI – EFFICIENCY SCORING & LOAD FORECASTING

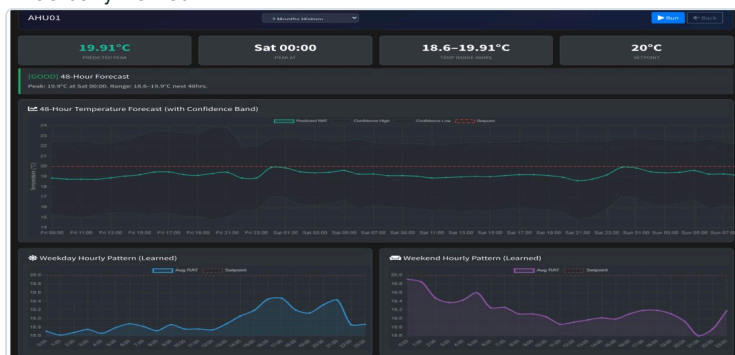


Efficiency dashboard – overall score, component breakdown and return air against setpoint

EFFICIENCY SCORE COMPONENTS

COMPONENT	WEIGHT	MEASURES
Setpoint adherence	40	Average value against setpoint
Temperature stability	25	Standard deviation – hunting and PID tuning
Comfort band time	20	Share of runtime inside the comfort band
Sensor health	15	Sensors reading correctly
Overall score	100	Reported per AHU, with weekly trend

- Every AHU is scored, so the worst performers are obvious without walking the plant
- Each score carries its diagnosis – for example $\sigma = 3.4$ °C, high hunting, PID retuning needed
- Weekly efficiency trend shows whether a corrective action actually worked
- Return air against setpoint is plotted with the score, so the number can be verified
- Scores can be listed for all systems and sorted worst-first
- Scoring uses runtime only – systems that are off do not distort the result

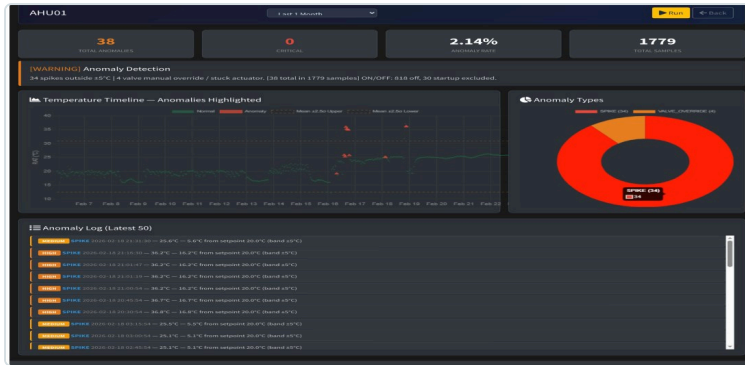


48-hour forecast with confidence band, plus the learned weekday and weekend hourly patterns

LOAD FORECASTING & PATTERN LEARNING

- 48-hour forecast with a confidence band giving the expected minimum and maximum
- Predicted peak value and the time it occurs
- Weekday and weekend hourly patterns learned from the building's own history
- Different occupancy profiles are handled automatically – no separate weekend programming
- Pre-cooling before peak occupancy reduces peak demand by 15–20 %
- Forecasts feed scheduling recommendations for the coming two days

NOVA AI – ANOMALY DETECTION & ROI REPORTING



Sensor anomaly detection — anomalies highlighted on the timeline, classified by type, with the latest events listed

ANOMALY DETECTION

- Temperature spikes — readings outside $\pm 2.5 \sigma$, separating sensor faults from real events
- Flatline sensors — stuck readings from sensor failure, wiring or communication loss
- Valve and equipment override events — manual actions during automatic operation
- Anomaly rate per system, so the worst sensors are calibrated first
- Anomaly log with time, value and deviation for the latest events
- Start-up periods are excluded, so normal transients are not flagged

DETECTION FROM ONE LIVE PHARMA DEPLOYMENT — 37 SYSTEMS

FINDING	COUNT	WHAT IT MEANS
Temperature spikes	1,662	Sudden readings outside $\pm 2.5 \sigma$ — sensor fault or a real event
Flatline sensors	427	Stuck readings — sensor, wiring or communication failure
Valve override events	38	Manual override during automation — control loop to review
Stuck sensors total	1,440	Across 37 systems, prioritised by anomaly rate

VFD & VALVE OPTIMISATION

- VFD energy assessed against the affinity law, $P \propto \text{speed}^3$
- Actual consumption compared with direct-on-line operation, per AHU
- kWh saved, percentage saving and value at the site tariff
- Valve overcooling detected and flagged for PID retuning
- Live result: 70 % average speed, 56.6 % energy saved on one AHU



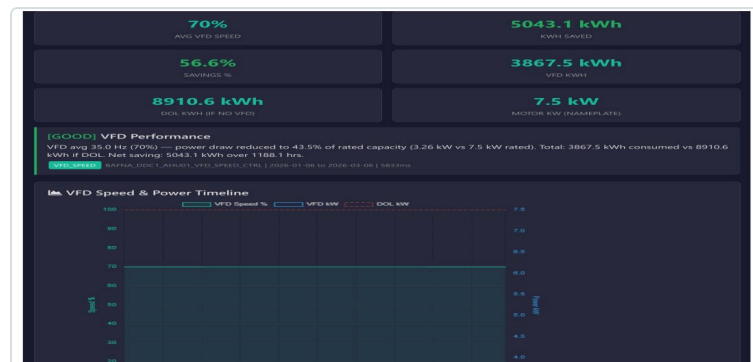
AI ROI business case — executive summary with system health banding and annual value

ROI BUSINESS CASE REPORT

- Systems assessed and average efficiency score
- Monthly and annual value, split by VFD savings, valve waste recovery and maintenance avoidance
- System health banding — good, moderate, warning
- Sensors and systems needing service now
- CO₂ avoided per year with tree and vehicle equivalents
- Generated on demand for management review

ENERGY MANAGEMENT

SmartNova meters energy where it is used and reports it the way the site is accountable for it — by utility, by source, by tenant and by system. The same data drives the savings analysis and the carbon report.



VFD performance — speed and power against time, with kWh saved compared to direct-on-line running

METERING

- EB (utility) supply, DG sets, thermal (BTU) and water meters
- Sub-meters by tenant, floor, block or individual equipment
- Meters read over Modbus RTU / TCP or BACnet through EnSmart controllers and gateways
- Automatic reads at period start and close for billing
- Solar and other generation sources can be added to the same dashboards
- Missing or failed reads flagged for correction before billing

DASHBOARDS & KPIS

VIEW	CONTENTS	PERIOD
Consumption	kWh by meter, system, floor or tenant	Day · month · year
Load profile	Demand curve through the day, with peak value and time	Day · week
Source split	EB against DG consumption and cost	Month · year
Comparison	This period against the previous period or the same period last year	Any
Thermal & water	TR-h and kilolitres by consumer	Day · month
Intensity	Energy per sq ft or per unit of production	Month
Air quality	CO ₂ , AQI and IAQ alongside energy	Live · day

SAVINGS

- VFD speed optimisation valued at the site tariff, per system and in total
- Valve overcooling recovery after PID retuning
- Peak demand reduction through AI pre-cooling and schedule shifting
- Verified example: ₹35.2 lakh a year at a single site — 20 VFDs, 3 valve systems and avoided maintenance

CARBON & COMPLIANCE

- CO₂ avoided per year, with tree and vehicle equivalents for reporting
- Emission factor configurable to the grid or site figure
- Reporting aligned to BEE / ECBC energy conservation requirements (ECBC certification is not held)
- Energy data exportable for ESG and sustainability returns

— TENANT BILLING

The billing module turns meter data into tenant invoices without re-keying. It is used in IT parks, data centres and industrial campuses where energy, thermal and water are recovered from occupants every month.

BILLING WORKFLOW

- 1 Configure consumers, their meters and the common areas they share
- 2 Set tariffs — unit rates, fixed charges and separate rates for EB, DG, thermal and water
- 3 Meter readings are captured automatically at the start and close of each period
- 4 Verify the readings; correct or enter a manual reading where a meter failed
- 5 Generate invoices for every consumer in one pass
- 6 Export, print or send the invoices, and carry forward advances and balances

TARIFFS & INVOICES

- Unit rate plus fixed and demand charges
- Separate EB and DG rates, so generator running is recovered correctly
- Thermal (TR-h) and water (kilolitre) rates
- Slab rates and demand-based time-of-day tariffs
- Common-area consumption apportioned by area share
- Advance and opening balance carried forward between periods
- Taxes and statutory charges on the invoice
- Invoice layout designed to the customer's own template

OUTPUT & CONTROL

- Invoices and consumption statements as PDF and XLS
- Consumption summary for all consumers in one sheet for finance
- A billed period can be reopened and corrected if a reading is revised
- Billing history per consumer, with payments received and outstanding balance
- Every reading traceable back to the logged meter data

Energy management and tenant billing are licensed modules and are also available as separate systems — see the SmartNova 5.2 Energy Management System and Tenant Billing System datasheets.

— OPEN SYSTEMS & INTEGRATION

SmartNova is protocol-open by design. Existing plant stays in place: a retrofit normally keeps the customer's working controllers and adds supervision over BACnet or Modbus, with no rip-out and no vendor lock-in.

INTERFACES		
INTERFACE	ROLE	NOTES
BACnet/IP	Read and command objects on any BACnet device	ISO 16484-5 / ASHRAE 135
BACnet MS/TP	Serial BACnet devices	Through EN-MRTU-BIP-LX router / gateway
Modbus TCP	Meters, PLCs and third-party systems on Ethernet	Client
Modbus RTU (RS485)	Field meters, VFDs and chillers	Via EnSmart controllers and gateways
MQTT	Publish selected data to an IoT or cloud platform when the customer wants it	Broker and topics configured per site
REST API	Read values and write commands from other applications	Token-based access
SMTP / SMS	Alarm notification by email as standard	SMS by custom development; gateway and SIM are the customer's scope
MySQL database	Direct access to historical data for customer reporting	MySQL is the standard platform; other databases by custom development
CSV import / export	Point lists, device schedules and gateway mappings	Speeds up commissioning

TYPICALLY INTEGRATED ON SITE

- Third-party BMS panels and controllers
- Chillers and chiller plant managers
- AHU, TFA and FCU controllers
- Energy, thermal (BTU) and water meters
- VFDs and soft starters
- DG sets and generator controllers
- Fire alarm panels over Modbus or BACnet
- Lighting control through its API
- CO₂, AQI and IAQ sensors
- Occupancy and turnstile counts through their API
- Cleanroom temperature, humidity and DP sensors
- Compressors, pumps and process plant

ENSMART HARDWARE

EN-CPU-V7	SmartNova DDC controller — BACnet/IP, 3 × RS485
EN-series IO modules	Ten DI / DO / AI / AO modules on Modbus RTU
EN-MRTU-BIP-LX / -3P	Modbus to BACnet/IP gateway and MS/TP router
EN-MRTU-MIP / -2P	Modbus RTU to Modbus TCP router

Each product has its own datasheet; SmartNova also supervises third-party devices directly.

ENGINEERING & COMMISSIONING

- Point schedule imported from the IO list — no manual entry of thousands of points
- Gateway point maps generated from a CSV tool and loaded into the device
- Factory acceptance test (FAT) on the built panel and database before dispatch
- Site acceptance test (SAT) against the same point schedule at handover
- Floor-by-floor or system-by-system cut-over so the building keeps running during a retrofit
- Failed field modules are replaced on site without re-programming the system

— SECURITY, USERS & COMPLIANCE

SmartNova is an on-premises system: the server, the database and the AI engine all sit inside the customer's network. Nothing is required to leave the site, which is what allows the platform to be used in validated pharma environments and other restricted facilities.

USERS & ACCESS

- Named user accounts — every action is attributable to a person
- Role-based permissions for operator, engineer, manager and administrator
- Access restricted by system or area where required
- Password policy, expiry and account lock-out
- Session timeout after inactivity
- Active Directory / LDAP authentication

AUDIT TRAIL

- Every operator command recorded with user, time and the old and new value
- Logins, configuration changes, schedule edits and alarm acknowledgements logged
- Records cannot be edited or deleted from the interface
- Audit trail exportable for inspection and review
- Electronic signature on defined critical actions
- Retention period agreed with the customer's QA

REGULATED FACILITIES

21 CFR Part 11

Tamper-proof, timestamped electronic records and audit trails for every alarm, command and AI finding

GxP validation

IQ / OQ / PQ documentation pack and test protocols supplied for the deployment

FAT & SAT

Factory and site acceptance testing against the agreed point schedule before handover

DATA & NETWORK SECURITY

- All process and analytics data stays on the customer's server
- No cloud service, no third-party data exposure and no internet dependency for any function
- Remote access only through the customer's own VPN
- Database archiving to storage the customer controls, performed as a planned task
- Server hardening, OS patching and antivirus remain under customer IT control

STANDARDS & CERTIFICATION

Building automation	ISO 16484-1:2024
BACnet	ASHRAE 135 / ISO 16484-5
Pharma records	21 CFR Part 11
Manufacturer	FDA registered · INBAC member
Hardware	CE / RoHS · Made in India
Energy	BEE / ECBC aligned reporting (not ECBC certified)

PRODUCT SPECIFICATIONS

PLATFORM		OPERATOR INTERFACE		ALARMS & EVENTS	
Release	SmartNova 5.2	Home dashboard	Server health, navigation, user and role	Alarm types	Limit, deviation, status mismatch, comms fail, sensor fault
Architecture	Server with browser clients	Graphics pages	One per system; no fixed limit	Alarm levels	Two — normal and critical
Deployment	On-premises only — customer's own server	Plant graphics	3D AHU, TFA, chiller and plant views	Notification	On screen and email; SMS by custom development
Client software	None — standard web browser	Live values	Per system, with units and status	Review	Single alarm review page with acknowledgement
Mobile access	Responsive browser interface	Commanding	Start / stop, setpoint, enable, mode	Acknowledgement	User, timestamp and comment
Language	English	Schedules	Weekly; several points on one schedule, with exception days	History	Filterable and exportable
Internet	Not required for any function	Roles	Operator, engineer, manager, administrator		
TRENDS & HISTORY		NOVA AI ANALYTICS		ENERGY & BILLING	
Points per chart	No fixed limit	Modules	Predictive maintenance, efficiency scoring, load forecasting, anomaly detection	Meter types	EB, DG, thermal (BTU), water
Periods	Day to 12 months	Execution	On the site server — no cloud	Sub-metering	By tenant, floor, block or equipment
Logging	15-minute interval by default, or on change of value	Prediction window	24–72 h developing faults; weeks for degradation	Billing	Tariffs, invoices, common-area apportionment
Storage	Monthly partitioned time-series tables	Efficiency score	0–100 from four weighted components	Billing output	PDF and XLS
Export	CSV / Excel	Forecast	48 hours with confidence band	Carbon	CO ₂ avoided with equivalents
		Anomaly types	Spike ($\pm 2.5 \sigma$), flatline, override	Tariffs	Unit, fixed, slab and demand-based rates
		ROI report	Monthly and annual value, CO ₂ avoided		
INTEGRATION		SECURITY & COMPLIANCE		CAPACITY PER SERVER	
Protocols	BACnet/IP, Modbus TCP, Modbus RTU, MQTT	Users	Named accounts, role-based permissions	Physical points	100 to 30,000+ I/O
Serial BACnet	MS/TP via EN-MRTU-BIP-LX	Audit trail	Tamper-proof, timestamped, exportable	Controllers / devices	BACnet/IP and Modbus TCP devices, sized with the point count
API	REST, token-based	Compliance	21 CFR Part 11; GxP validation support	Browser users	Not licence-limited — any browser on the LAN
Notification	SMTP email, SMS gateway	Network	LAN / VPN; no internet required	Remote access	Secure EnSmart tunnel for access outside the LAN
Database	MySQL; other databases by custom development	Archiving	Manual, to customer-controlled storage	Sites per dashboard	No fixed limit; site licence per building
Point import	CSV point schedule and gateway maps			Trended points	Sized by the server specification

— SYSTEM REQUIREMENTS, LICENSING & ORDERING

SITE SERVER (MINIMUM)		CLIENT & NETWORK	
Processor	Intel Core i7 or better	Browser	Chrome, Edge or Firefox
Memory	16 GB RAM	Mobile	Android and iOS browsers
Storage	500 GB — size up with point count, logging interval and retention	Network	100 / 1000 Mbps LAN to the server
Operating system	Windows 10 or later	Remote access	Customer VPN, or the secure EnSmart tunnel
Platform	Apache, PHP and MySQL (WAMP stack)		

ORDERING INFORMATION		
ITEM	DESCRIPTION	PART NUMBER
Base licence	SmartNova 5.2 server and BMS supervisor, licensed by datapoint band	SN-BMS-100 / -200 ...
Nova AI analytics	Predictive maintenance, efficiency scoring, forecasting, anomaly detection and ROI reporting	SN-BMS-AI-100 / -200 ...
Energy management	Metering dashboards, consumption and carbon reporting	SN-EMS-100 / -200 ...
Tenant billing	Tariffs, invoices, apportionment and billing history	SN-TBS-100 / -200 ...
Additional site	Site licence for a further building reporting to the central dashboard	On request
Validation pack	21 CFR Part 11 / GxP documentation, IQ-OQ-PQ protocols	On request
Support & updates	Annual support, updates and remote assistance	On request

The number in a part number is the licensed size — datapoints for SN-BMS and SN-BMS-AI, nodes for SN-EMS and SN-TBS (one node = three trended datapoints plus the meter's other monitoring points).

FROM ENQUIRY TO HANDOVER

- 1 Site assessment — IO list and existing systems reviewed
- 2 Design — point schedule, graphics, alarms and reports agreed
- 3 Factory acceptance test on the panel and database
- 4 Installation and commissioning, system by system, building in use
- 5 Site acceptance test, operator training and handover
- 6 Annual support, updates and periodic review

Technical support	Installation & setup	Integration services	Operator training	Validation support	Annual maintenance
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