# Tor Shield
## Building Management System 4.0

**Consumption**
optimised

**Compliance**
simplified

**Continuity**
ensured

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# Buildings - smarter & better

As buildings have evolved to accommodate diverse functions and increasing occupancy, they have become intricate ecosystems of interconnected assets and systems. This complexity has driven the need for advanced management solutions like Building Management Systems, or BMS, to control critical functions like energy, lighting, HVAC, elevators and security. These systems are designed to optimize operations, keep costs down, and maintain occupant comfort & safety.

But typical BMSs have significant limitations. They are often technologically outdated, difficult to scale, and costly to modify. They typically have access to data restricted to the premises. Their reporting engines lack flexibility and fail to integrate with advanced analytics or AI/ML technologies. Also, managing peripheral systems like water, backup generator, bus bars, and capacitor banks remains a challenge.

Meet **Tor Shield, the Building Management System 4.0.** Designed to do everything a typical BMS does, and so much more.
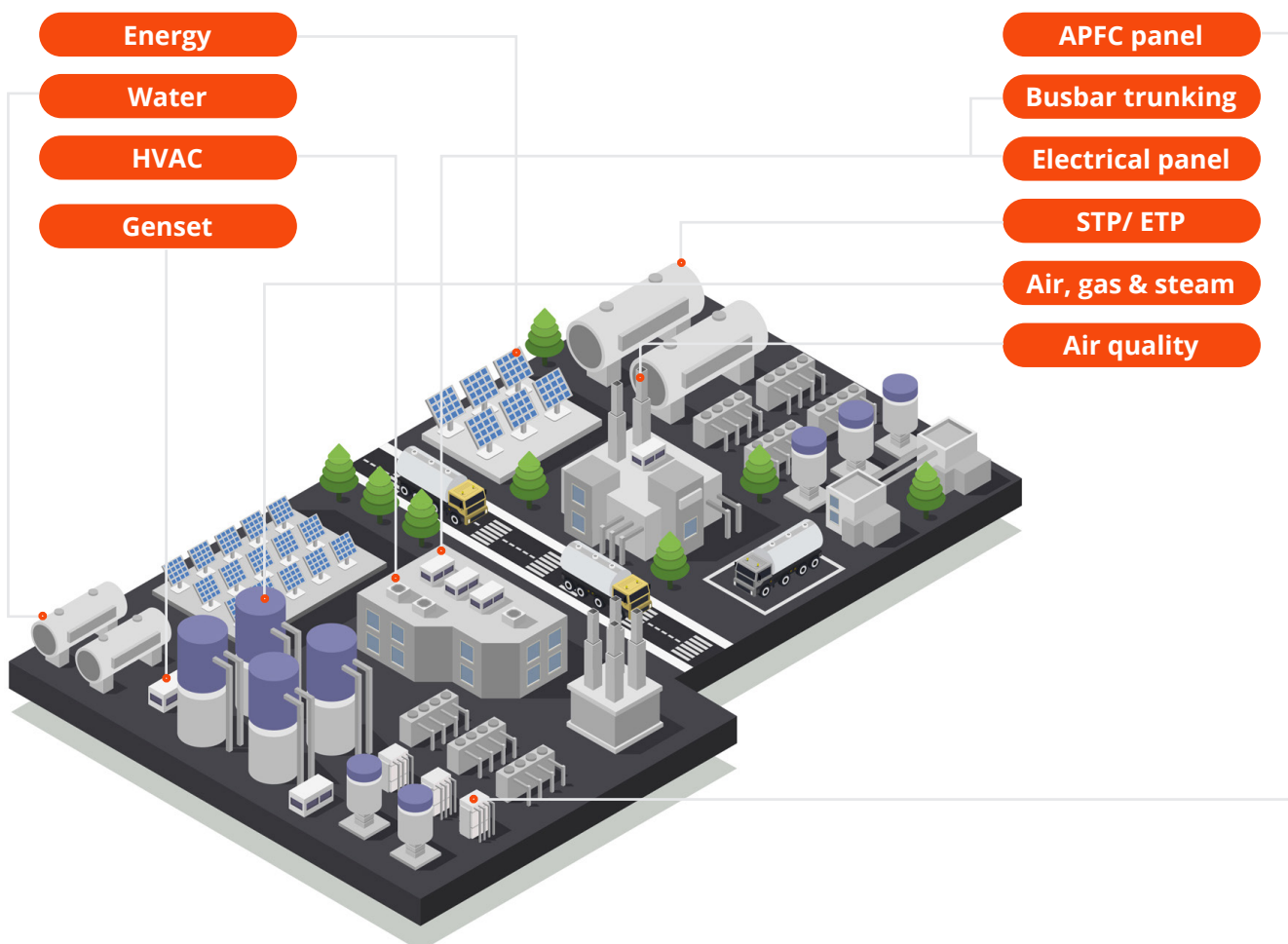
## Consumption
optimised

Spot consumption spikes, benchmark across locations/ equipment, predict consumption trends, optimise manpower & eliminate expensive errors

## Compliance
simplified

Customised reports for ESG or BRSR reporting & mitigate risks to safety

## Continuity
ensured

Avoid expensive breakdowns, enhance equipment/facility uptime & plan for predictive maintenance

Energy
Water
HVAC
Genset

APFC panel
Busbar trunking
Electrical panel
STP/ ETP
Air, gas & steam
Air quality

# Solution layers

## Sensing & processing

**Smart edge appliance**

Cygnus

**Gateways**

Jupiter

Venus

Pluto

**Protocol converters**

Cygnus 902

Jupiter 812

**Meters & controllers**

Titan 411 PMU

Titan 300 series MFM

Saturn

Flow meter

Gas meter

**Sensors & Acutuators**

Mercury (Temperature)

Neptune (Vibration)

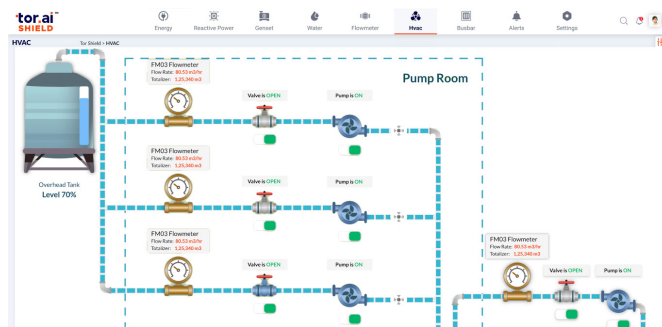Ceres (Fuel)

Actuator

## Visualization & analysis
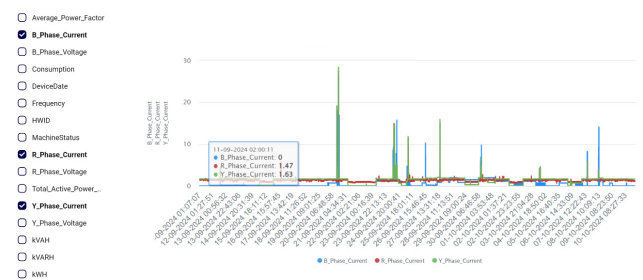
Dashboards, reports & alerts.

# Key features

## 1 Create a real-time digital twin of your facility

Leverage a live, data-driven digital twin to replicate your factory or building virtually. Gain real-time insights, simulate scenarios, and make smarter decisions with a comprehensive view of your facility's operations.
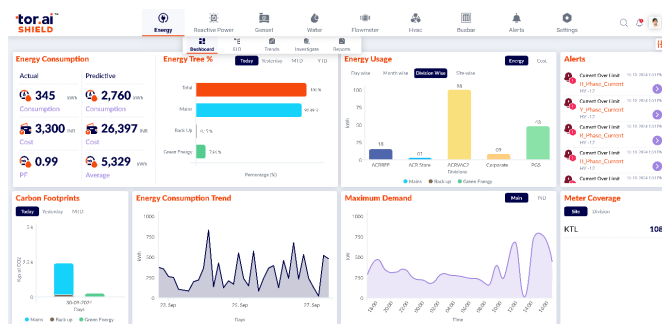
## 2 Unlock patterns in your data with Trends

Dive deep into historical and real-time data to identify trends, anomalies, and performance insights. Our powerful analytics engine enables you to make data-backed decisions for continuous improvement and optimized operations.





## 3 Centralised dashboard for unified KPI monitoring

Monitor critical KPIs across systems through a single, intuitive dashboard. Get a unified view of operations and performance metrics in real time to stay informed and in control.
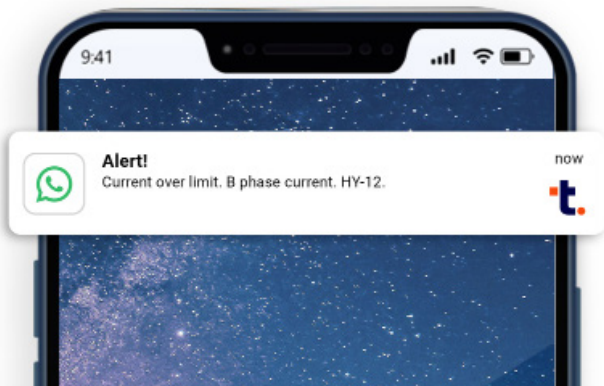
## 4 Comprehensive reporting at your fingertips

Generate detailed reports, including BRSR and maintain a digital logbook for audit trails. Ensure compliance, track progress, and make data-driven decisions with ease.
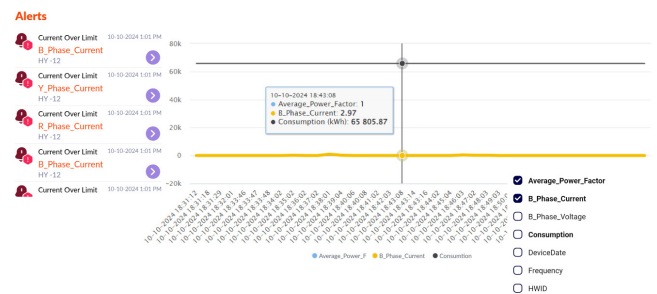
# 5
## Real-time alerts on WhatsApp & Email

Receive critical notifications instantly via WhatsApp, and email. Set up custom alert thresholds to ensure timely responses and proactive issue resolution.
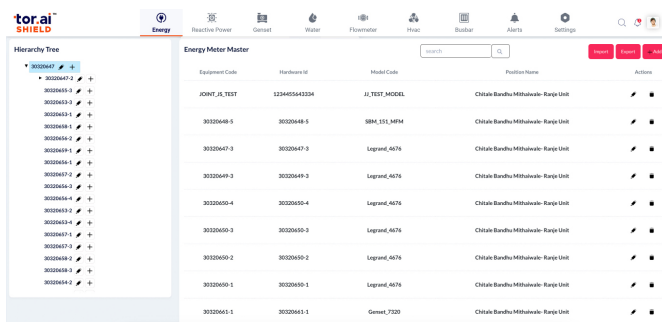
# 6
## From alerts to actionable insights by Investigate

Analyze historical and real-time time series data to understand the root cause of alerts. Pinpoint anomalies, identify trends, and take data-driven corrective actions to prevent future issues.

# 7
## Seamless configuration - anytime, anywhere

Configure devices, and meters remotely using our intuitive web app to match your operational requirements, ensuring a fully adaptable and scalable solution for your building or factory.

# 8
## Hierarchy based access control to the web application

Assign user roles and permissions based on organizational hierarchy to ensure secure and controlled access. Restrict or grant functionalities based on roles, safeguarding critical data while enabling seamless collaboration across teams.

# 9

## Anytime anywhere access by mobile & web apps

Access your BMS platform on the go with our mobile and web apps. Whether you're on-site or remote, monitor operations, receive alerts, and take action in real time - ensuring seamless facility management from any location.

# 10

## Low latency actuation for your critical systems

Execute commands with minimal delay, ensuring real-time control over critical systems. Our low-latency actuation enables quick responses to operational needs, improving efficiency and reducing downtime.
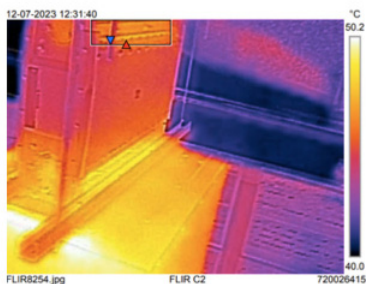


**Live Parameters and Setpoints**

| | | |
|---|---|---|
| 🌡 **27.3** °C | 🌡 ⊕ 22.07 ⊖ °C | |
| RA Temperature | RA Temperature SP | |
| 🔆 **27.3** °C | 🔆 ⊕ 57 ⊖ % | |
| Actuator Status | Actuator Control | |
| 💧 **27.3** °C | 💧 ⊕ 57 ⊖ % | |
| RA Humidity | RA Humidity SP | |
| 🌡 **13.4** °C | 💧 **99** % | |
| SA Temperature | SA Humidity | |

# 11

## Smarter decisions with AI-powered insights

Leverage AI-driven analytics for predictive maintenance, thermography reports, and anomaly detection. Gain proactive insights to optimize energy usage, detect faults early, and enhance overall system efficiency.

**Site A - Joint 1**

| Measurements | |
|---|---|
| Max | 46.0 °C |
| Min | 44.0 °C |
| Avg | 45.4 °C |
| Amp. temp. | 23.0 °C |
| Dt | 22.4 °C |

# Shield in a box

Cygnus is a plug-and-play smart edge appliance that seamlessly connects legacy systems, IoT devices, and partner solutions into a unified BMS 4.0 platform. Designed for on-premise deployment, Cygnus ensures real-time data processing at the edge, reducing cloud dependency for faster insights and secure operations. It integrates Tor IoT solutions, meters, existing infrastructure, and third-party systems seamlessly—eliminating the need for costly replacements. Cygnus makes BMS deployment simple, scalable, and future-ready. We call it Shield in a Box - because it's everything you need, in one powerful solution.

## Unified BMS 4.0 Ecosystem

Bridges legacy systems with modern IoT platforms

Supports BACnet, Modbus, MQTT, OPC-UA, RS485, CANBUS

Enables on-site analytics & AI-driven optimizations

Ensures tamper-proof, encrypted data sharing

## Extend capabilities beyond core

Existing infrastructure remains intact

Eliminates the need for costly replacements

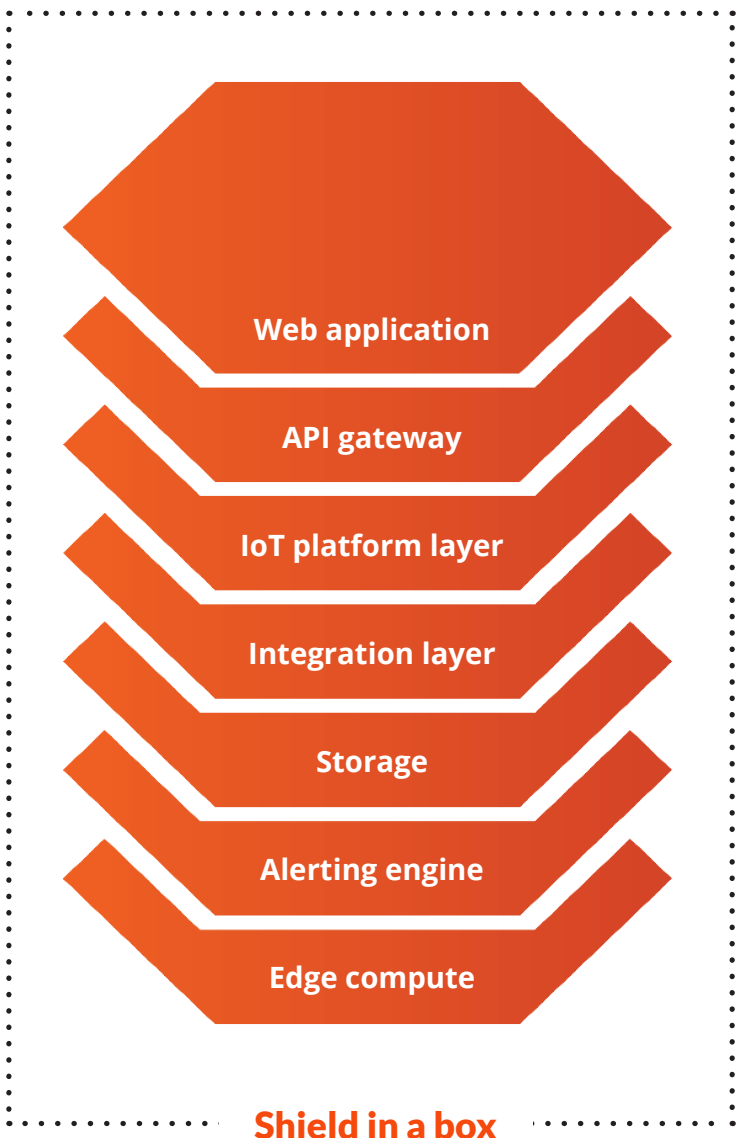Multi-protocol support ensures universal compatibility

## Plug-and-play deployment

Pick and choose modules, avoiding unnecessary investments

Modular expansion with certified partner systems

Continuous innovation with new partner integrations

Web application

API gateway

IoT platform layer

Integration layer

Storage

Alerting engine

Edge compute

**Shield in a box**

# Capabilities

### 1 RnD

Technology refinement by 100+ inhouse team of engineers and subject matter experts in embedded systems, hardware development, type testing - validation, application and platform development.

### 2 Application & Analytics

Expertise in developing and deploying customized applications with platform and database development along with managing infrastructure and security.

### 3 Manufacturing

Our hardware is manufactured in state-of-the-art pick and place setup for board building along with code burning bank for building multiple boards in parallel.

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