



SIGMA DYNAMICS

**Intelligent Building & High-Security Systems, Developments
and Services**

Intelligent Infrastructure. Maximum Protection.

Three decades of engineering excellence — now powered by artificial intelligence.

Who We Are

Nearly 30 years of mission-critical infrastructure. Since the late 1990s, Sigma Dynamics has designed, engineered, delivered and operated landmark developments across Central & Eastern Europe and the Mediterranean in the fields of structured cabling, fiber optic backbones, enterprise networks, integrated security, broadcast facilities and intelligent buildings.

Built layer by layer. Each new generation of our work builds on the success, experience and further development of previous projects: the security, surveillance and operation of facilities receiving thousands of daily visitors, the creation of statistical data and databases, and the delivery of complex platforms that make hundreds of subsystems behave as one.

Our high-security systems are the fusion of decades of experience and development that we have mastered and operated.

30+

YEARS OF
ENGINEERING
& SYSTEM
INTEGRATION

9

COUNTRIES ACROSS
EUROPE &
THE MEDITERRANEAN
REGION

25+

LANDMARK
REFERENCE
PROJECTS DELIVERED

1

ACCOUNTABLE
PARTNER —
DESIGN · BUILD ·
OPERATE

Understanding the Challenge

Facilities storing firearms, ammunition, precious metals or controlled substances face a threat landscape that conventional security was never designed to handle.



Layered, Adaptive Threats

Modern adversaries are patient and adaptive — combining physical intrusion with insider risk, social engineering, surveillance of routines and exploitation of procedural gaps.



Absolute Accountability

Every access event, every movement of protected material and every anomaly must be provable, traceable and auditable — not occasionally, but permanently.



Fragmentation = Vulnerability

More guards, cameras and alarms bring diminishing returns. Isolated systems create isolated data — and the gaps between them are exactly what a sophisticated adversary exploits.

Our answer: *one unified protection ecosystem — physical hardening, electronic security, building intelligence and AI operating as one, under one accountable partner.*

Protecting the Most Sensitive Asset Classes



**Firearms &
Ammunition**



**Explosive
Materials**



**Precious Metals,
Jewelry & Stones**



**Cash, Vault &
Treasury Operations**



**Pharmaceuticals &
Controlled Substances**



**Chemicals &
Regulated Materials**



**High-Value Electronics
& Critical Equipment**



**Documents, Evidence
& Data Assets**

Engineered for governmental, defense and regulated-industry environments — where failure is not an option, every event must be reconstructable, and responsibility is absolute.

Our Engineering Methodology



01

Threat & Risk Assessment

Asset classes, adversary capability, insider risk and regulatory framework. The protection concept is derived from the threat model — never the reverse.



02

Security Architecture

Physical hardening specs, zoning philosophy, sensor coverage modeling, redundancy design and the integration strategy binding all subsystems.



03

Detailed Engineering

Electrical & low-voltage engineering, structured cabling and fiber design, segmented secure networks, power autonomy — documented to procurement standard.



04

Implementation & Integration

Certified teams, disciplined project management, staged commissioning and rigorous testing of every seam between subsystems.



05

Validation & Handover

Scenario-based acceptance testing simulating intrusion, circumvention and failure — plus full operator training and documentation transfer.



06

Operation & Improvement

Maintenance, vulnerability reassessment, AI model refinement and system evolution — protection that strengthens over time. Proprietary, closed-circuit audio-video communication like SIGNAL.

Defense-in-Depth — Five Layers of Protection



1

Physical Hardening

Certified strong-rooms, reinforced zones, ballistic & forced-entry resistance, secure perimeter.

2

Access Control & Identity

Biometrics, multi-factor verification, mantraps, dual authorization, full traceability.

3

Continuous Surveillance

HD video, multi-technology intrusion detection, environmental sensing — 24/7/365.

4

Intelligent Analytics — AI Core

Real-time multi-sensor fusion detecting suspicious patterns the moment they emerge.

5

Command, Control & Response

Unified operational picture, prioritized verified alerts, guided rapid response.

Physical Hardening & Access Control



LAYER 1 — PHYSICAL HARDENING

- Reinforced storage zones & certified strong-room construction
- Forced-entry and ballistic-resistant structural elements
- Secure perimeter architecture with controlled approach zones
- Protected technical spaces for the security infrastructure itself
- Environmental protection — fire, water and power events

Engineered to delay any intrusion long enough for detection, verification and response to complete — the time equation of physical security.



LAYER 2 — ACCESS CONTROL & IDENTITY

- Biometric authentication — fingerprint, facial, multi-modal
- Multi-factor verification: credential + biometric + PIN
- Role-based, time-based, least-privilege zone authorization
- Anti-passback enforcement & interlock (mantrap) transfer zones
- Dual-authorization (four-eyes) for highest-protection zones
- Complete personnel & visitor traceability

The right person, in the right zone, at the right time — with every movement recorded.

Continuous Surveillance & Detection



High-Resolution Video

Complete coverage modeling — no blind zones, no compromise.



Intelligent Motion Detection

Detection profiles adapted to each zone's operational reality.



Multi-Technology Intrusion

Volumetric, perimeter, seismic and glass-break detection in depth.



Environmental Sensing

Temperature, humidity, smoke, gas, flooding and vibration.



Tamper Detection

Every security device and its infrastructure — self-protected.



Redundant Secure Recording

Tamper-evident storage of every event, frame and signal.

Uninterrupted, site-wide situational awareness — the sensory system of the protection ecosystem.

AI Analytics & Command, Control, Response



LAYER 4 — THE AI CORE

Where traditional systems see isolated events, the AI core sees patterns: a credential used at an unusual hour, a person lingering near a restricted zone, a sequence of minor anomalies that together signal preparation for an attempt.

- Real-time fusion of all sensor systems simultaneously
- Suspicious behavior & unauthorized access identified instantly
- Anomalous patterns surfaced before they become incidents



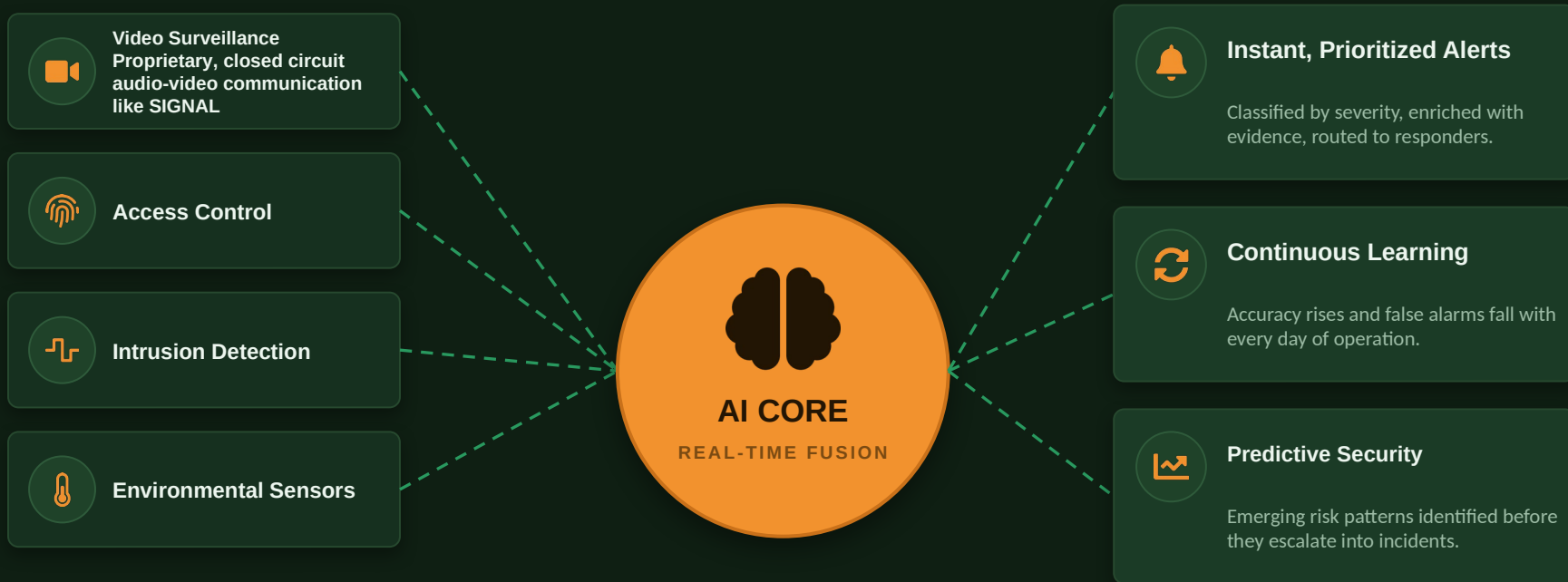
LAYER 5 — COMMAND & CONTROL

All intelligence converges in one centralized platform that transforms detection into action.

- Immediate, prioritized and verified alerts
- Unified picture: video, access, alarms & sensors on one interface
- Guided response procedures for every incident class
- Coordination & communication tools for security personnel

Operators no longer search for information during an incident — the system delivers the picture, the procedure and the tools at the moment they are needed.

Artificial Intelligence at the Core



Human-in-command by design. AI detects, analyzes and recommends — decisions remain with trained security personnel.

Accountability, Auditing & Reporting

For governmental and regulated environments, protection without accountability is incomplete. Every relevant event is provable, traceable and reconstructable.



Complete Forensic Record

Every access, alarm, operator action and system state change captured in a secure, tamper-evident database — a chronologically precise record for auditing and investigation.



Automated Reporting

Structured management reports on security performance, incident statistics, response times, system health and emerging threat indicators — decision-grade insight.



Periodic Assessment

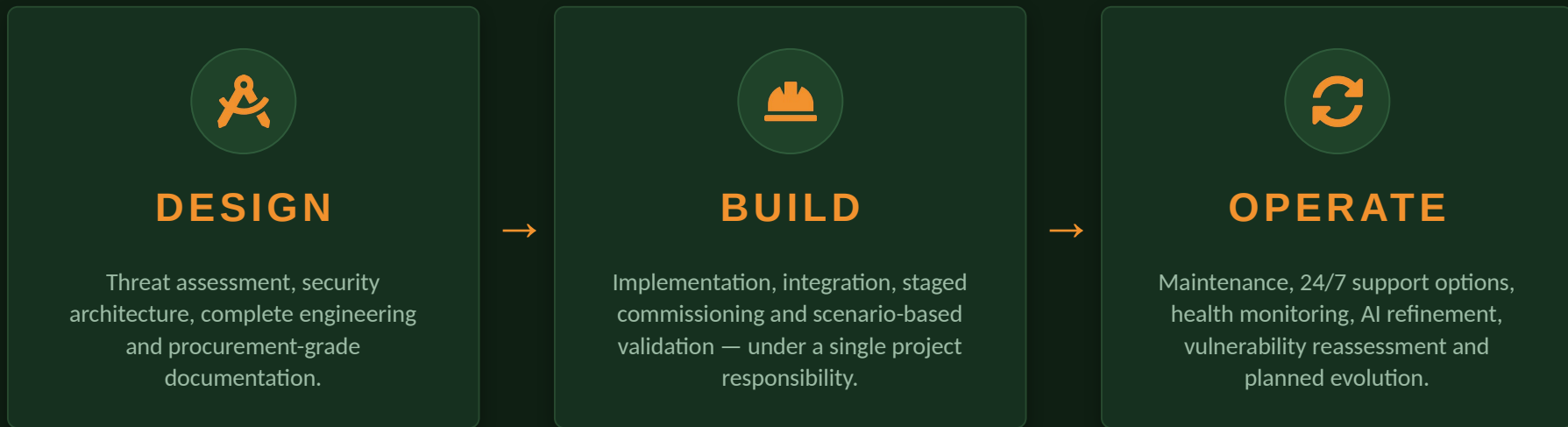
Regular security assessments and vulnerability analyses across the system's life — identifying weaknesses before adversaries do, driving continuous strengthening.



Procedural Integrity

Audit trails extend to the human layer: authorization workflows, dual-control procedures and operator activity — accountability covers people and processes, not only technology.

Full Lifecycle — Design · Build · Operate



No gaps. *The most dangerous flaws in security projects live between designers who never see operation, installers who never see the threat model, and operators who inherit systems they did not shape. With Sigma Dynamics, one partner carries the protective mission from the first risk workshop through every year of operation.*

Smart Building Intelligence

A facility we protect is also a facility we make intelligent. Building automation — KNX, BACnet, Modbus, MQTT and API-based integration — places lighting, HVAC, power and energy under the same unified platform as security. The convergence delivers capabilities isolated systems cannot.

The result: a facility that is simultaneously safer, more efficient and less expensive to operate — protection and performance from one integrated intelligent system.



Motion-Responsive Lighting

Intrusion zones and response paths illuminated instantly on alarm, with laser & infrared nets.



Precision Environmental Control

Sensitive stored materials held within exact tolerance bands.



Power Integrity Monitoring

Anomalies threatening security system availability detected early.



Energy Optimization

Operating cost reduced — never at the expense of protection.



One Facility Dashboard

Security, building services and energy on a single pane of glass.

Advanced Security & Energy Systems



Drone Detection & Counter-Observation

Detection, identification and tracking of unauthorized UAVs over the protected site — extending situational awareness into the airspace above the facility.



Intelligent Perimeter Fence, Laser & Infrared Nets

Smart fencing with pre-intrusion detection: the system senses an approach and issues an audible warning to the intruder before the fence is even reached — deterrence ahead of breach.



High-Class Rooftop Solar Systems

Premium rooftop photovoltaic systems built only with the best panels, batteries and converters on the market — maximizing energy efficiency for smart buildings.



EV Charging Plants

Design, build and operation of large-scale interior and exterior EV charging systems — from individual bays to full charging plants, fully integrated and monitored.



NATO-approved equipment. All equipment used in high-class buildings and military infrastructure is NATO approved.

Complete Services & Systems Portfolio



Security Systems

- CCTV / VSS — Closed-Circuit TV / Video Surveillance Systems
- IDS — Intrusion Detection / Burglar Alarm Systems
- ACS — Access Control Systems & biometrics
- Fire Detection & Alarm Systems
- Emergency Lighting Systems
- Intercom / Video Intercom Systems
- SOC — Security Operation Center
- Drone detection & intelligent perimeter fence
- Public Address (PA) Systems



Smart Building & Automation

- BMS — Building Management Systems
- KNX, BACnet, Modbus, MQTT & API integration
- Intelligent lighting & HVAC control
- Energy metering & power monitoring
- Blinds, shading & environmental control
- AI-driven analytics & dashboards



Energy & E-Mobility

- High-class rooftop solar (PV) systems
- Premium panels, batteries & converters
- Interior & exterior EV charging plants
- Renewable energy monitoring
- Energy optimization & efficiency



Infrastructure & Networks

- Structured cabling & fiber optic backbones
- Intelligent perimeter fence, laser & infrared nets
- Enterprise networking & Wi-Fi systems
- Low-voltage engineering
- Broadcast-grade infrastructure
- Design · Build · Operate lifecycle

HERITAGE

Three Decades of Success and Experience



1992

FIRST LANDMARK
DELIVERY

5

SECTORS MASTERED

9

COUNTRIES

2026

AI-NATIVE PROTECTION

ROMANIA · HUNGARY · GERMANY · CZECH REPUBLIC · SLOVAKIA · POLAND · SPAIN · MALTA · CYPRUS

Development & Operation of Multifunctional Buildings



Olympia Einkaufszentrum **Munich · 1992**

Shopping-centre extension · Structured cabling · Low-voltage engineering



WestEnd City Center **Budapest · 1999**

Structured cabling · Telecommunications · Low-voltage engineering



Millennium Plaza **Prague · 1999**

Communications infrastructure · Structured cabling · Network design



Polus City Center **Bratislava · 2000**

Low-voltage systems engineering · Telecommunications backbone



Sigma Shopping Center **Cluj-Napoca · 2006**

Security systems · Structured cabling · Communication networks

Multifunctional Buildings (continued)



Sigma Business Center Cluj-Napoca · 2006

Low-voltage infrastructure · Enterprise networking · Building technology



Polus Center Cluj Cluj-Napoca · 2007

Communications · Fiber optic backbone · Security systems · Low-voltage



Arkády Pankrác Mall Prague · 2008

Low-voltage systems · Structured cabling · Telecommunications networks



Maritimo Shopping Center Constanța · 2012

Communications · Security systems · Technical networks · Low-voltage

International Hospitality · Sports · Broadcasting & Media



Kempinski Airport Hotel

Munich · 1993 · 1994

- Structured cabling systems
- Telecommunications infrastructure
- Hospitality technology integration



Prague Marriott Hotel

1999

- Structured cabling systems
- Telecommunications infrastructure
- Hospitality technology integration



Warsaw Marriott Hotel

2009

- Network infrastructure
- Low-voltage systems
- Communications engineering



CFR Cluj Stadium

2008

- Fiber optic backbone networks
- Security systems
- Broadcasting connectivity



Look TV & Transilvania Live

Intel Sky Broadcast · 2011

- Broadcast infrastructure design
- Studio networking & fiber connectivity
- Technical systems integration



TMG Broadcast Studio

Intel Sky Broadcast · 2012

- Broadcast-grade infrastructure & fiber
- Production network architecture
- Studio systems integration

TMG: at implementation, one of the largest and most advanced television production facilities in Romania.

Condominiums & Luxury Residential Developments



International Luxury Villas Portfolio

2020 – 2026

Spain · Malta · Cyprus · Hungary · Romania

Enterprise-grade automation integrated into luxury residential environments — intelligent, energy-efficient, secure and highly personalized living spaces.

These projects prove the convergence of automation and security at the highest residential protection level.

- ✓ KNX building automation
- ✓ Home Assistant integration
- ✓ Intelligent lighting control
- ✓ HVAC automation
- ✓ Energy management
- ✓ CCTV/VSS & security systems
- ✓ Access control
- ✓ Smart irrigation
- ✓ Pool & spa automation
- ✓ EV charging infrastructure
- ✓ Renewable energy monitoring
- ✓ Solar photovoltaic (PV) systems
- ✓ Custom IoT development

Why Sigma Dynamics



Three Decades Proven

~30 years of system integration across 8 countries, hundreds of projects, every technology generation.



One Accountable Partner

Threat assessment, design, build, integration, operation and improvement — one engineering responsibility.



AI That Improves Daily

Detection sharpens, false alarms fall, and risk is anticipated rather than merely reacted to.



Complete Accountability

Tamper-evident records, full audit trails and automated reporting — built for governmental scrutiny.



Security × Intelligence

The rare convergence of high-security engineering and smart building mastery in a single partner.



Open & Vendor-Independent

Proven, open, scalable technologies — never locked to one vendor, always one coherent ecosystem.



*Through continuous monitoring, intelligent automation and AI-driven improvement, Sigma Dynamics maintains the highest achievable level of protection for the assets that matter most —
today, and for every year of the facility's life.*

SIGMA DYNAMICS

INTELLIGENT INFRASTRUCTURE • MAXIMUM PROTECTION



Contact Us

CLUJ-NAPOCA • HEADQUARTERS

Republicii Street 109, 400489, Cluj-Napoca, Romania

+40 364 413 419

BUDAPEST OFFICE

Podmaniczky utca 11, 3rd Floor, 1065 Budapest, Hungary

+36 70 315 4333

office@sigdyn.com