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octagram

Modular Engineering Platform

System Architecture & Components Catalogue

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Designed for system and security integrators

Intro / About the Platform

One Platform. Firmware-Defined Logic. Scalable Security and Building Automation.

Most security and building automation projects don't fail because of hardware limitations.

They fail when system complexity grows faster than the team that has to design, deploy, and maintain it.

Octagram's Modular Engineering Platform (MEP) was developed to address this challenge.

Since 2010, we have been building systems around a single controller architecture that allows system integrators to design projects of any scale using repeatable, modular building blocks instead of one-off solutions.

At the core of the platform is the A1 Controller — a universal management core that unifies security, automation, and integration tasks within a consistent system structure.

Why this matters for integrators.

The MEP platform helps integrators:

• reduce dependence on rare, highly specialized engineers,

• standardize system architecture across different projects,

• simplify commissioning, upgrades, and long-term maintenance,

• scale projects without increasing operational complexity.

This catalog provides a structured overview of the platform components, showing how they fit together and how they can be combined to build reliable, maintainable security and building automation systems.

Designed for system and security integrators working with long-term, support-critical projects.

Contents

A Modular Engineering Platform for Buildings

A modern building is a complex environment that combines multiple subsystems, including access control, intrusion detection, fire safety, and engineering equipment management.

To ensure predictable operation, occupant safety, and regulatory compliance, these systems must operate in a coordinated and structured manner rather than as isolated components.

Practical experience shows that integrated architectures built on a unified platform simplify system design, improve reliability, and reduce operational complexity throughout the system lifecycle.

The Modular Engineering Platform (MEP) by Octagram is designed to support this approach, providing a common foundation for security and building automation systems within a single, structured architecture.

From Concept to Practical Implementation

Today, smart building design has become an integral part of modern engineering projects. Building systems are often assembled from equipment supplied by multiple manufacturers or from different subsystems within a single platform.

Experience shows that solutions built on a unified architectural approach are easier to integrate, more predictable in operation, and simpler to maintain over time.

At the same time, the ability to connect equipment from a wide range of manufacturers remains critical, allowing integrators to select optimal peripherals without compromising overall system structure.

The number of functional modules involved in system integration has a direct impact on overall system complexity, reliability, and maintainability. Architectures that rely on a limited and clearly defined set of modules are easier to deploy, support, and scale over time.

The Octagram approach is based on consolidating system logic within a single A1 controller, where functionality is defined by modular, replaceable firmware rather than by heterogeneous hardware components. This allows the same platform architecture to be applied across projects of varying size and complexity.

System functionality is determined at the design stage by selecting the required firmware components, enabling precise alignment with project requirements while avoiding unnecessary hardware duplication.

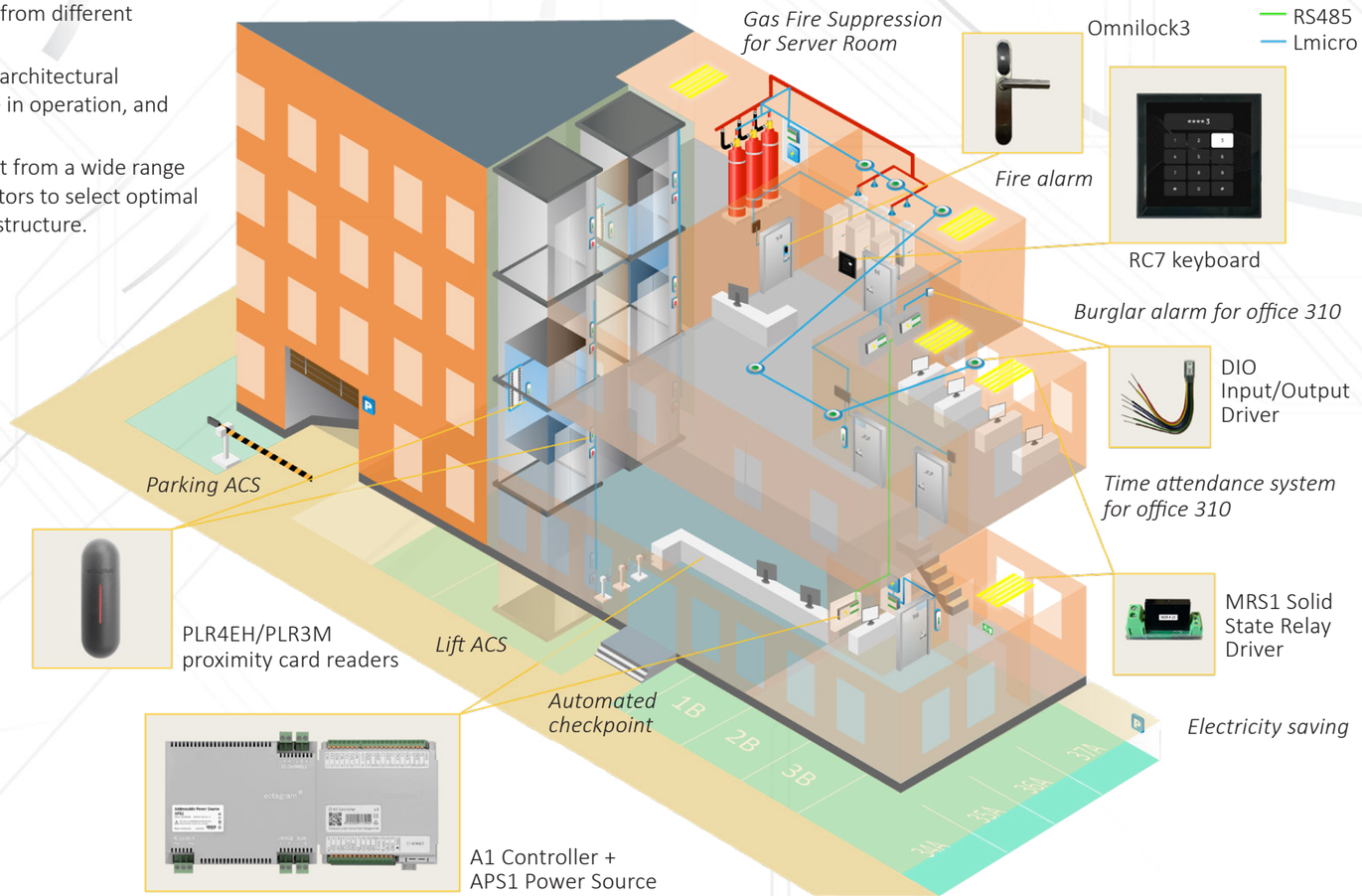
In practice, this results in a structured, predictable system architecture that supports modern automation requirements while maintaining high standards of security, reliability, and long-term operation.

Simplicity and Clarity in Operation

The Octagram Flex software is designed to provide clear system visibility and predictable operation without introducing unnecessary complexity into daily workflows.

System status, events, and alarms are presented in a structured manner and can be monitored both on operator workstations and local control panels. Interface elements are organized to support consistent operation across different system roles.

Security is implemented as an integral part of system operation. In addition to data protection and project-level licensing, the platform supports role-based access control, enabling clear separation of permissions for configuration, administration, and monitoring functions across different operator groups.



Practical results of the platform architecture

Controllers, information devices, and executive devices are interconnected through addressable modules and micromodules, enabling structured and predictable system behavior.
By standardizing the controller core and limiting the number of I/O driver types, the platform supports consistent system design across different projects and application domains within intelligent building environments.

This architectural approach results in:

- *Reduced system complexity* — simplified deployment and commissioning processes.
- *Improved reliability* — fewer heterogeneous components and clearer system structure.
- *Efficient system reuse* — the same hardware platform can be applied across multiple projects with functionality defined by firmware configuration.
- *Controlled functional expansion* — system capabilities are extended through firmware updates rather than hardware replacement.

Example of Application:

The Lift Access Control System (LACS) is an A1-based solution that integrates access control logic directly with elevator control algorithms. It defines and enforces usage rules for passenger and freight lifts, improving operational control and security in multi-storey buildings.

Originally developed for Schindler systems, LACS has been successfully deployed and adapted for use with other major elevator manufacturers, including KONE and Otis, demonstrating long-term reliability and cross-platform compatibility.

Key Functions:

- No impact on core lift operation.
- Controlled lift access for authorized users.
- Traffic and load management during peak periods.
- Priority service modes for designated users.
- Policy-based operational restrictions.
- Support for building maintenance and service operations.

Scalability and Distributed System Architectu

The Octagram Flex software is designed to support systems of varying scale within a consistent operational model. System administration is performed through a unified management interface, allowing projects to grow from small installations to complex facilities without changes to core software architecture or operational workflows.

Depending on project requirements, the system can be deployed on a single central server or across multiple distributed servers. In distributed configurations, this architecture enables centralized supervision and coordinated operation of security and life-safety systems across geographically dispersed sites.

Modular Engineering Platform for Smart Home

Consider a typical residential building. At the core of its infrastructure are electrical distribution, fire safety, and intrusion detection systems — all of which form the foundation of a reliable and compliant installation.

As automation requirements are added, smart home functionality is often introduced at later project stages. In many cases, this is done using wireless solutions, driven by their perceived ease of deployment and minimal impact on existing structures.

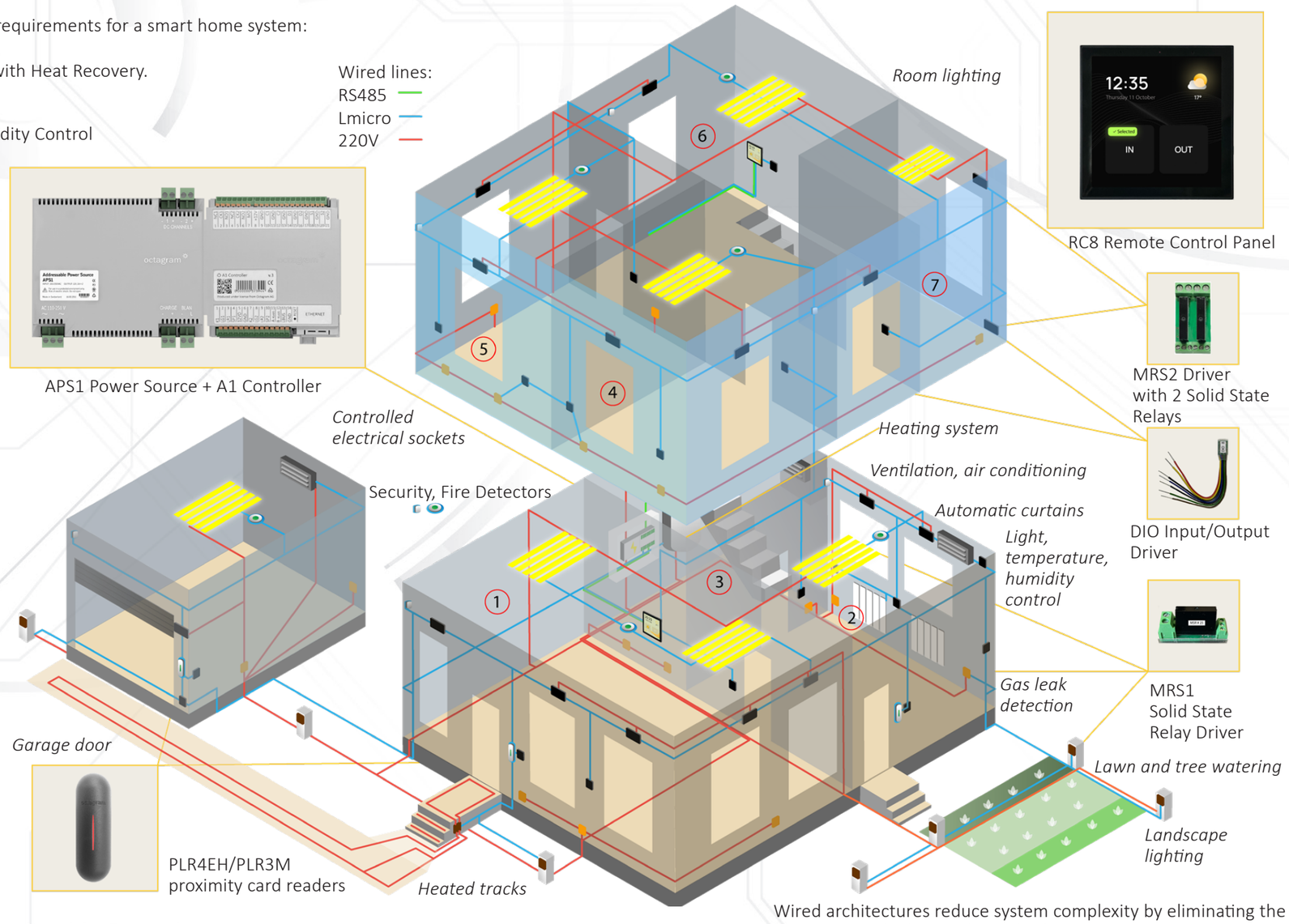
While wireless systems may simplify initial installation, professional smart home and security projects require a more structured approach that accounts for system lifecycle, integration depth, and long-term operational stability.

Examine the following functional requirements for a smart home system:

1. Indor and Landscape Lighting.
2. Ventilation, Air Conditioning with Heat Recovery.
3. Curtains Automtion.
4. Heating Control.
5. Light, Temperature, and Humidity Control
6. Garden Irrigation.
7. Gas System Management
8. Fire Alarm System.
9. Security Alarm System.
10. Doors and Gate Access Control.

In large smart home installations, wireless architectures often require a significant number of active radio devices distributed across rooms and zones. Each of these devices must be powered, monitored, configured, and maintained as part of the overall system. As the system grows, this increases operational complexity and introduces additional points of failure that must be managed throughout the system lifecycle.

Professional wired smart home architectures address this challenge by minimizing the number of active field devices and relying on structured, deterministic communication paths. By centralizing control logic and reducing dependency on distributed radio components, wired systems provide predictable behavior, simplified maintenance, and controlled system expansion. This approach aligns with established engineering practices in security and building automation projects where long-term stability and operational clarity are essential.



Designed for Long-Term, Predictable Operation

After completion of structural works, electrical appliances and smart home equipment are integrated as part of the final installation stage.

Wired system architecture minimizes reliance on battery-powered devices and transmitters infrastructure changing, reducing maintenance requirements and supporting stable long-term operation.

A structured approach to smart home design

For professional-grade smart home and building automation systems, wired architectures provide predictable performance, long-term stability, and clear system structure.
By relying on wired connections instead of battery-powered transmitters, system complexity is reduced, maintenance requirements are minimized, and overall reliability is improved — especially in large or long-lifecycle installations.

This approach reflects established engineering practice in professional security and automation projects.

Planning for a wired smart home

Wired smart home systems are most effective when system architecture is defined at early project stages and integrated into the initial electrical installation.

This approach allows control lines and system topology to be planned alongside power distribution, resulting in a structured installation process and predictable system behavior throughout the project lifecycle.

Depending on project requirements, both direct and addressable connections can be used. The Modular Engineering Platform supports hybrid architectures, allowing integrators to select the appropriate connection model without being locked to specific device manufacturers.

Key platform characteristics:

- Supports both direct and addressable connections.
- The MEP enables systems of any complexity with just a few modules / micromodules types.
- System behavior is adjusted through firmware configuration and software settings.
- Compatible with a wide range of third-party equipment.
- Individual system nodes can operate autonomously, independent of a central server.
- System expansion and functional growth are supported without redesigning the underlying architecture.

Wired architectures reduce system complexity by eliminating the need for battery-powered transmitters, repeaters, and additional signal infrastructure.

Fewer active components simplify installation, reduce maintenance requirements, and improve long-term system stability.

From an engineering perspective, wired systems provide predictable behavior and controlled communication paths, making them well suited for durable, secure, and long-lifecycle installations.

Octagram Flex Software

Operational Convenience and System Usability

Octagram Flex software is developed based on extensive operational experience with modular engineering, security, and building automation systems deployed in real facilities. Its architecture is designed to support the full lifecycle of complex installations—from commissioning and daily operation to expansion and long-term maintenance—while allowing each project to activate only the functionality it actually requires.

The platform provides a comprehensive set of operational tools, including event visualization, access control monitoring, reporting, scheduling, and integration with video management systems. System logic and responses can be adapted through configurable rules and scripting mechanisms, enabling precise alignment with site-specific operational requirements without altering the core platform architecture.

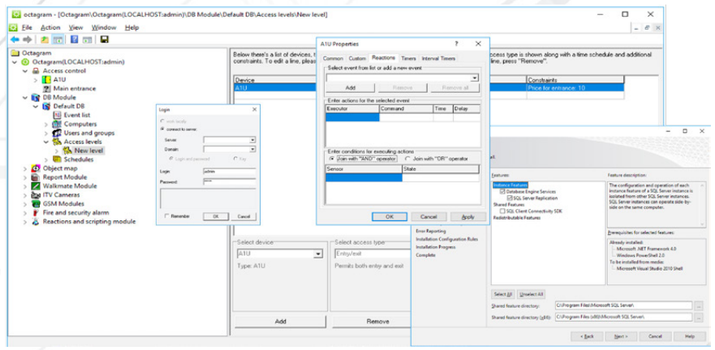
System usability is achieved through structured interfaces and clearly defined operational roles rather than through interface simplification alone. Access rights are strictly differentiated, ensuring controlled interaction with system functions across monitoring, administration, and configuration levels. Both global and local system behaviors can be adjusted to reflect building policies and operational scenarios.

Key usability and operational features include:

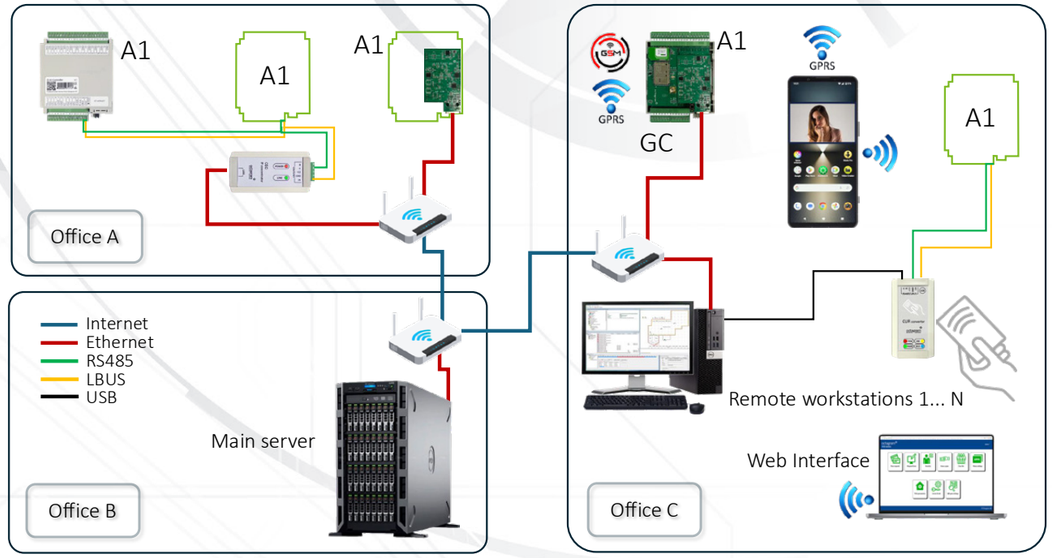
- Role-based user interfaces adapted to specific operator responsibilities.
- Visual system representation using interactive plans, zones, and status indicators.
- Integration with video systems and contextual event-based visualization.
- Flexible reporting, scheduling, and activity tracking tools.
- Web-based access for monitoring, administration, and distributed system operation.

This approach ensures consistent system behavior, efficient operator interaction, and long-term usability across projects of different scale and complexity, without increasing operational overhead or training burden.

A structured software environment where system behavior, access, and functionality are set at the project level, ensuring stable operation and easy management throughout the system lifecycle..



MEP Octagram Architecture Options



Ensuring the Reliability of Modular Engineering Platform

The reliability of Modular Engineering Platform is achieved through the following key factors:

- *Scalable Architecture:* The system can be deployed on one or multiple servers, allowing centralized management of both personnel and equipment from a single console.
- *Flexible Database Support:* Compatible with various DBMS, including MS Access, MS SQL Express, and MS SQL Server for efficient data storage and retrieval.
- *Distributed System Organization:* Supports data replication across multiple remote locations, ensuring system resilience and redundancy.
- *Optimized Traffic Efficiency:* Reduces server-to-hub traffic by a factor of ten compared to competitors, leading to lower telecommunication costs.
- *Enhanced Security:* Utilizes AES encryption, enabling secure operation within public networks, including the Internet.
- *Real-Time Event Processing:* Equipment operates in active mode, immediately transmitting event data to the server, ensuring high reliability and real-time accuracy.
- *System Integrity Control:* Each controller has a unique, license-registered serial number, protecting the system from unauthorized hardware substitution.
- *Seamless Network Integration:* Fully compatible with standard network equipment, utilizing optimal connection methods for CEO, CE, and CED concentrators.
- *Modular Platform Design:* Ensures simplified operation of even the most complex systems, with all necessary functionalities easily accessible.
- *Web interface:* provides cross-platform access to management and monitoring through any standard browsers, enhances the security of cloud services through modern protection protocols, and supports integration with bot services for task automation.

Octagram Flex Software Specification

	Eco		Class	Lux		Professional		
The system type	ACS	FBA	Modular engineering systems (integrated security systems)					
Database	MS Access			SQL Express		MS SQL		
Number of controllers	5		16	32	64	64	128	> 128

A1 Platform

A Firmware Specifications

A1 is the core of the MEP architecture

The A1 Controller is the central element of the Modular Engineering Platform, designed to serve as a unified control and management core for security and building automation systems.

Instead of distributing logic across multiple specialized devices, the A1 Controller consolidates system intelligence into a single, structured platform — simplifying design, deployment, and long-term support.

Built for system integrators, the controller enables projects of different scale and complexity to follow the same architectural principles, reducing fragmentation and custom dependencies.

The Platform- Key Principles:

- *Unified Controller Architecture* A single core controller manages security, automation, and system logic.
- *Modular Firmware Design* Functional blocks can be added, expanded, or updated without redesigning the platform.
- *Consistent System Structure* Ensures clarity and control even in large or complex projects.
- *Easy Integration* Designed for smooth integration with other systems or platforms.

Designed to function either as part of a broader ecosystem or as a standalone device.

System/software type	General data (unless otherwise specified)	Automation			Access Control Systems												FAAS, BAS, Fire Extinguishin				
Firmware designation		H	U	HT	D*	DD*	DS	DP	DU	TC *	TX	C (CL)	DC	G	DMQ	LQ	S	F	SF	FE	SFE
Type and number of managed devices:																					
Lock, latch, electronic lock scutcheon		1		4	1	2	1	1	1			2			32						
Turnstile										1	1										
Card capture reader (Reader post)										1											
Gate, barrier					1			2						2							
Traffic light												2		2							
Siren	1																2				
Floor and lift cabin buttons																64					
Number of access types		3	9	3	11	11	11	8	8	10	N/A	10	3	6	3	2	3				
Number of schedules	64	N/A															N/A				
Number of time Intervals	3 (100*)																				
Limitations of intervals / dates	yes																				
Schedule duration	64 weeks																				
User's photo & video showing	yes																				
«Catching hares», lock blocking by a card		N/A			Yes	N/A															
Passage detectors support		1							2		N/A	2		1			N/A				
Emergency unblocking of access point	Yes																				
Paid passage management	Yes		N/A																		
Number of addressable buses LMicro	2	4	2	4	N/A										4						
Length of addressable buses LMicro	350 m																				
Number of addresses in LMicro	64		32																		
LMicro ring circuits possibility	Yes		N/A												No						
Number of set/unset poins	32	1		4	N/A																
Number of groups per controller	32				N/A																
Number of additional relays		N/A			N/A					4	N/A	2	2	2	N/A	6	4				
Max voltage/current in additional relays	+60V/3,5A	N/A													N/A		+30V/1,2A; +60V/4A; ~220V/10A				
Max number of keys / events	64K /32K*										N/A						4K				
Light and sound indication	Green and Red LEDs (output voltage +5V). Beeper (output voltage +12V)																				
Supply voltage	+12V																				
Input current	100 mA																				
Power source parameters monitoring	with APS1																				
Number of internal relays	2 NC/NO																				
Max voltage/current in internal relays	+60V/10A																				
Connection interface with readers	Touch Memory/Wiegand-26 (with TWT converter)																				
Reader-to-controller max distance	15 m (Touch Memory) /100 m (Wiegand-26) /350 m (DTR, DTW, DIR, MIR)																				
PC connection interface	TCP/IP																				
Distance of LBUS/RS485	700 m	In case using MA1 (line amplifier LBUS)- up to 7000 m																			
Mounting	DIN rail																				
Overall dimensions	95(145)x90x48 mm																				
Unit weight	160 (195) g																				
Operating temperature range	+5...+40 °C (up 90% humidity)																				

*- there are two firmware options: Regular: General use. Instant Key Recording (Q): Optimized for quick data transfer.

Extending functionality without custom logic

Rather than relying on custom code for every project, the A1 Controller uses modular firmware blocks that can be combined and configured to meet specific project requirements — without breaking system architecture.

This allows non-standard system behavior to be implemented within a standardized architectural framework, reducing risk and dependence on individual engineers.

Functions and Key Features of the A1 Platform Firmware

H	Engineering Equipment Management, direct Door Lock Control, Addressable Burglar and Fire Alarm functionalities.
U	Engineering Equipment Management, Addressable Door Lock Control, Burglar and Fire Alarm functionalities.
HT	Automation, security and locks management for hotel rooms or offices (up 4-s).
D	Access control system for doors, barriers, or gates using a single operating relay. Features include "Catching Hares" mode and card-based lock blocking functionality.
DQ	Access control system for doors, barriers, or gates, similar to D firmware, but with instant key recording functionality.
DS	Access control system for door, barrier or gate with entry blocking when premise in guar.
DD	Access control system for 2 doors, 2 barriers or 2 gates.
DDQ	Access control system for 2 doors, 2 barriers or 2 gates similar to DD firmware, but with instant key recording and more complete regulation of access rights functionality.
DP	Access control system for door, barrier or gate (1 operating relay) with double identification proxy card + PIN, or biometry.
DMQ	Access control system for up to 32 passage points using addressable modules and micro modules, featuring instant key recording.
DU	Access control system for a checkpoint with reversible motorized lock control, utilizing two relays integrated into the controller.
C (CL)	Access control system for a two-door sluice, featuring weight, explosive, and metal detector integration (CL – without detectors).
DC	Access control system for a single door in a sluice. When paired with another controller, it enables full sluice control.
G	Access control system for doors, barriers, or gates, featuring pass control and management of two red/green traffic lights.
LQ	Access control system for a 32-floor elevator, managing both floor selection and cabin call buttons with instant key recording functionality.
T	Access control system for turnstile, barrier or gate using two operating relays.
TQ	Access control system for turnstile, barrier or gate with instant key recording.
TC	Access control system for turnstile, barrier or gate (2 operating relays) featuring card capture reader .
TCQ	Access control system for turnstiles, barriers, or gates (with 2 operating relays), featuring a card capture reader and instant key recording functionality.
TT	Access control for turnstile with bar-code reader with external authorization. 2 pass sensors controlling. 2 NO/NC relays for entry and exit. Emergency opening of the pass point.
SF	Fire and Burglar Alarm System with integrated Engineering Equipment Management.
FE	Automatic control of fire extinguishing, smoke removal and warning. Fire alarm System with integrated Engineering Equipment Management.
SFE	Automatic control of fire extinguishing, smoke removal and warning. Fire and Burglary Alarm System with integrated Engineering Equipment Management.

Each firmware type offers a standard option (4,000/16,000 (Q) users/events, 32 addresses) and a B option (64,000/32,000 (Q) users/events, 64 addresses).

Platform note

Modular firmware enables project-specific functionality within a standardized system architecture.

This principle applies across the MEP and is not limited to a specific device or application.

Platform Components

RC100 Remote Control

The RC100 is designed to perform the following tasks:

- Monitoring the state of the security and / or fire alarm system, automatic fire-extinguishing system;
- Setting and disarming of security and / or fire alarm groups;
- Start / stop / blocking of the automatic fire-extinguishing system;
- Events display;
- System errors display;
- Management of the system modes.

Model	RC100	RC8
Communication protocol with the controller	LBUS	RS485
Number of LCD characters (pixels)	40	480x480
The number of RC100 in one segment	15	32
Quantity of controllers in the segment	255	32
Communication distance with the controller	up 700 m	up 700 m
Supply voltage	~15 V /+12 V	~220V /+12 V
Input current:		
operation mode	up 100 mA	up 100 mA
alarm mode	up 300 mA	up 100 mA
Operating temperature range	+5...+40 °C	+5...+40 °C
Unit weight	225 g	350 g

RC8 Remote Control

The RC8 Touch Screen Panel is a control interface designed for managing Smart Homes within the Octagram ecosystem. It features an RS485 gateway, an Ethernet gateway, and enables remote control of the system, offering seamless integration and advanced functionality.

With the RC8, you can effortlessly control lighting, curtains, air conditioning, and other Smart Home devices. Additionally, the panel supports the configuration of customised Smart Home scenes through the Octagram Flex Software. You can activate these scenes with a single touch on its intuitive screen. This feature ensures both convenience and efficiency in managing your Smart Home environment.

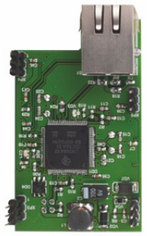
By default, the RC8 displays the current time, system status. Moreover, the RC8 provides real-time temperature and humidity readings. Furthermore, when connected to the Internet, it delivers up-to-date weather forecasts, making it an all-in-one solution for monitoring and controlling your home.

The RC8 panel designed to work with addressable micromodules trough A1 controllers. For larger or more complex setups, multiple RC8 panels can be integrated into a single project, ensuring enhanced functionality, scalability, and a unified Smart Home experience.

Platform components

Converters for Ethernet

CEO



CE (CED)

The CEO and CE IP Concentrators are networking devices designed to provide Ethernet connectivity for A1 controllers via a wired bus connection. They operate over LBUS/RS485 lines and support connections to up to 255 and 32 devices respectively.

These concentrators enable scalable system deployment for both small and large installations, ensuring reliable data transmission and centralized system management.

For applications requiring increased reliability and redundancy, the CEO and CED IP Concentrators are available as enhanced configurations. In cases where a wired Ethernet connection to a CEO or CED concentrator is not feasible, system connectivity can be maintained via a GPRS communication channel using the GC module. This allows uninterrupted system operation without dependence on physical Ethernet infrastructure.

Model	CEO	CE (CED)	CUR	GC
Design variant	device	circuit board	device	circuit board
Compatible with controllers	all series	A1	all series	A1
Supply voltage	+12 V			
Input current	до 100 mA			up 700 mA
Number of connected devices	up 256 (32 recommended)			1
Overall dimensions	105x52x29 mm	50x70x18 mm	105x52x29 mm	35x70x18 mm
Unit weight	92 g	36 g	105 g	30 g

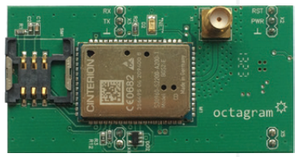
USB Converter

The CUR is a multifunctional device designed for configuration, communication, and licensing within the A1 platform.

It integrates an LBUS/RS485-to-USB converter, enabling direct connection of A1 controllers to a PC for communication with Octagram Flex software. This simplifies system configuration, diagnostics, and data exchange during installation and maintenance.

In addition, the CUR functions as a desktop proximity card reader for access control operations and serves as a USB hardware license key for Octagram Flex software..

GC Module of Wireless Communication and SMS Transfer



GC:
GPRS & SMS Communication

The GC module is designed to establish a GPRS communication channel between the A1 controller and the server running Octagram Flex software. It can be installed directly into the A1 controller and is used when an Ethernet connection via a CED concentrator is unavailable.

In addition, the module supports SMS messaging, providing an alternative channel for system notifications and alerts..

MA1 Lbus Signal Amplifier

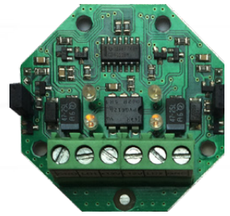
The MA1 is designed to amplify signals within the LBUS controller's communication lines, ensuring reliable data transmission over extended distances. Its primary function is to receive signals via the LBUS, process them to eliminate noise, and then transfer the cleaned signals to the designated section.

The device features LED indicators that clearly display its operational modes, providing real-time status updates for easy monitoring and troubleshooting.

The MA1 amplifier offers flexible power options, as it can be powered either by one of the nearby controllers or by a separate power supply, ensuring adaptability to various installation scenarios. This versatility enhances its usability and integration into your system.

Model	MA1	IPS
Overall dimensions	66x48x26 mm	47x47x22 mm
Unit weight	50 g	80 g

IPS LMicro Short-Circuit Defender



The IPS device is designed to protect against short circuits by isolating faulty sections of the circuit. This is achieved by disconnecting the faulty section of the LMicro bus.

The primary function of the IPS is to analyze the state of the bus segments and control their commutation through a solid-state relay, ensuring safe and efficient operation.

The device features LED indicators that clearly display its operational modes, offering real-time status updates for easy monitoring.

PLR4EH/PLR3M Proximity Card Readers

Gray and black card readers

Model	PLR4EH	PLR3M	CH2EH
Type of identifiers	EM-M/ HID	MIFire	EM-Marine + HID
Type of equipment	Proximity reader		Addressable proximity card pocket reader
Enclosure	ABS plastic (gray, black)		
Indication	Sound, light		
Distance of reading	70 mm		10 mm
Communication protocol	Touch Memory Wiegand-26		LMicro
Sup. voltage/ current	+12 V / 30 mA		
Op. temp. range	-35...+ 40 °C		+5...+ 40 °C
Dimensions	120x40x20 мм		70x70x10 мм
Weight	100 g		150 g

CH2EH Addressable Pocket Reader for Proximity Cards

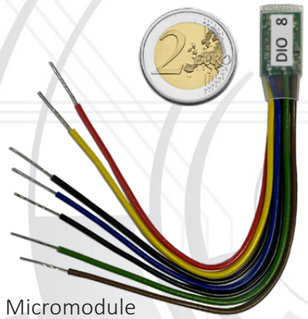
The CH2EH serve for engineering equipment management, smart homes, and security. The device generate a "card inserted" event only when a valid proximity card, registered in the controller and with the appropriate access status, is inserted into the reader.

This ensures a high level of security and prevents unauthorized access. It is important to note that the CH2EH is specifically calibrated for proximity cards and will not recognize credit cards, business cards, or other non-compatible cards.

This precision makes it a reliable and secure solution for access management in various applications.

Platform components

Addressable Micromodules



Micromodule

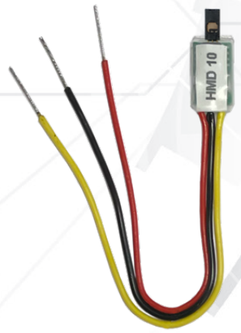
To facilitate interaction between peripheral devices and the A1 controller, in addition to direct connections, the following input/output drivers can be utilized: expansion modules, addressable modules and micromodules.

The **DIO** Addressable Micromodule is particularly versatile and can be employed for a wide range of tasks, including:

1. Loop (or Contact) Control: Designed to monitor the status of detectors through a two-wire loop, including conditions such as break, normal, attention, alarm, and short circuit.
2. Load Switching: Capable of switching loads via a transistor with a rating of 30V and 1.5A.

The addressable micromodule- drivers:

- **DTR, DTW, DIR**: These micromodules are designed for converting and transferring data from external sources, such as readers, to the controller. For instance, they convert data from Wiegand-26 or Touch Memory protocols and transmit it via the Lmicro line to the A1 controller.
- **TMP, HMD, LAC**: These micromodules are responsible for measuring and transmitting information about temperature, humidity, and illumination levels, respectively, to the controller.
- **DAD5, DAD10**: These micromodules convert analog voltage signals, with maximum voltages of-5V and 10V, respectively, into digital signals and transmit them to the controller.
- **DDA5, DDA10**: These micromodules convert digital signals from the controller into analog signals, with maximum output voltages of 5V and 10V, respectively.
- **D220**: This micromodule monitors the status of a 220V power line, detecting whether voltage is present or absent.
- **PIN (TWT)**: This micromodule (or module) is designed to convert the Wiegand-26 protocol into the Touch Memory format, outputting the data



Micromodule

These micromodules are easily installed using the Scotchlok® connection method, ensuring quick and secure installation. For outdoor applications, the micromodules can be coated with a protective compound, indicated by the addition of the letter “O” to the device type.

Addressable Modules and Expansion Boards

MRC2 Module

The addressable modules are adding the line of micromodules in case you need more powerfull managed output then micromodules.

- The MRC module is equipped with two electromagnetic relays for connecting and controlling two 220 VAC loads with a maximum current of 30 A. A key feature of the device is the load connection monitoring.
- There is also the MRCA – a standalone version designed for controlling two air conditioners.


MDC Module

- **MDC** module is a versatile solution designed for controlling two contacts. It features a built-in reed switch, a power transistor output driver, and robust protection against short circuits and voltage impulses. The module also includes standard safeguards, such as protection for the signal line against overvoltage and static electricity. Additionally, it is equipped with a tamper button. The MDC module is well-suited for a wide range of applications in automation and access control systems.


MIR Module

- **MIR** module provides key reading, status indication, and relay control, offering a versatile solution for various applications.
- **MIOC** module is designed for load management through a solid-state relay, offering monitoring for shorts and breaks in the power line to the connected device. It features built-in short-circuit protection and can be installed independently from the device, supporting connection to a single device at a time
- **MSR** - load control module via a solid-state relay allows you to connect third-party equipment.
- **DHV** module is equipped with electromagnetic relay for connecting and controlling 220 VAC loads with a maximum current of 10 A.


R6 Board

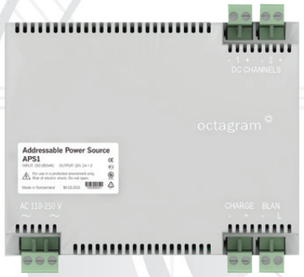
The boards can be installed on the A1 controller:

- **4S2R** control board with 4 inputs (1 contact for each) and 2 outpots pairs of contacts.
- **2S2R** control board with 2 inputs (1 contact for each) and 2 outpots pairs of contacts.
- **4R** managing board with 4 pairs of el-mag contacts (~135V DC/AC 0.3A).
- **6R** - managing board with 6 pairs of MOS relay contacts (-60…+60V DC/AC 0.25A).

Modules / micromodules model	DIO	TMP	HMD	LAC	DTR/DTW	DIR	MIR	MDC	MIOC	DHV	MRC	MRCA	MSR	MSRA	DAD5/10	DDA5/10	D220	PIN/TWT
Modules / micromodules type	I/O	measuring			Lmicro	lift management		lock	fire estg	220V powered equipment management					transformation		220V	protocol
Functions, controlled parameters	2 inputs 1 output	tempe-rature	humi-dity	Illumi-nation	commu-tation	buton connection, reader transfering		managing	1 input 1 output	el-mag relay	2 «dry contacts»		«dry contact»		A to D	D to A	control	Wiegand TM
Supply voltage	+11,5...15V																	
Current consumption	10 mA	2 mA				10 mA	40 mA		20 mA	40 mA	50 mA		20 mA		10 mA			
Actuating element	transistor	N/A			transistor	NO SSR	1 NO/NC	NO SSR	transistor	1 NO/NC	2 NO/NC	2 NO/NC	NO SSR	NO SSR	N/A	transistor	N/A	
Max voltage of actuating element	30 V	N/A			5 V	30 V	~220 V	+60 V	+5-36 V	~220 V						0-5/10 V	N/A	
Max current of the actuating element	1,5 A	N/A			0.05 A	0.5 A	10 A	0.7 A	6 A	10 A			0.5 A			0.05 A	N/A	
«0» logic voltage	0-0,8 V	N/A																
«1» logic voltage	2-5 V	N/A																
Measurement range		-35+80°C	0...98%	N/A											0-5/10 V	0-5/10 V	180-250V	N/A
Measurement accuracy		1°C	2 %	N/A											0.5 V	0.5 V	N/A	N/A
Overall dimensions	22x11x6				27x11x8	27x11x8	70x50x27				100x55x25		43x25x12		27x11x6			
Unit weight	5 g				7 g	10 g	50 g	30 g		50 g	80 g		30 g		5 g		15 g	5/20 g

The Patform Components

APS1 Addressable Power Supply



The APS1 is a three-channel addressable power supply unit with stabilized output voltage. It includes battery charging control for backup batteries with a capacity of up to 17 Ah.

Two power supply channels for peripheral devices are disconnected when the voltage drops to 11 V. The third channel, supplying the A1 controller, is disconnected when the voltage drops to 9 V.

The device is designed for DIN-rail mounting and for continuous 24-hour operation within an ambient temperature range of +5 to +40 °C and relative humidity of up to 90%.

Input voltage	~170-250 V
Input current	up 0,5 A
Output voltage	13,6±0,5 V
Output current	2x1,8 A + 0,5 A
Overall dimensions	120x114x55 mm
Unit weight	370 g

FB1 Fire Alarms Installation Cabinet

The cabinet can accommodates up to two APS1 power supply units, two A1 controllers, one RC100 control panel, and two 12 V / 17 Ah batteries.

The cabinet is equipped with a lock and tamper protection.

FB1 is designed for continuous 24-hour operation within an ambient temperature range of +0 to +45 °C and relative humidity of up to 90%.

Overall dimensions: 400 × 410 × 95 mm.

FB2 4-Directional Automatic Fire-Fighting System (AFFS) Panel

The cabinet provides visual indication and audible alarms and includes controls for an automatic fire extinguishing system.

It supports APS1, A1, and 12 V / 17 Ah batteries and is designed for continuous 24-hour operation at +0 to +45 °C and up to 90% relative humidity.

Overall dimensions: 275 x 285 x 80 mm.

FB3 4-Directional AFES Panel with Embedded RC100

The cabinet provides visual status indication and audible alarms and includes control elements for an automatic fire-fighting system. It accommodates up to two APS1 power supply units, two A1 controllers, one RC100 control panel, and two 12 V / 17 Ah batteries.

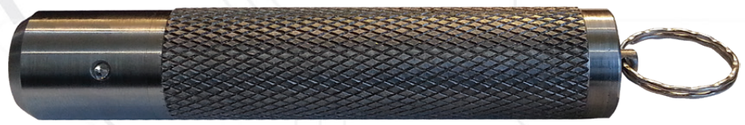
The cabinet is equipped with a lock and tamper protection and is designed for continuous 24-hour operation within an ambient temperature range of +0 to +45 °C and relative humidity of up to 90%.

Overall dimensions: 400 × 410 × 95 mm.

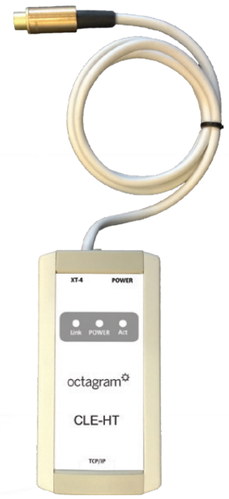
Walkmate – Personnel Work Monitoring System

Purpose of the System

The Walkmate system is intended for monitoring staff activities and evaluating the quality and diligence of duty execution across various services, including servicemen, track workers, and other mobile personnel.



Walkmate device



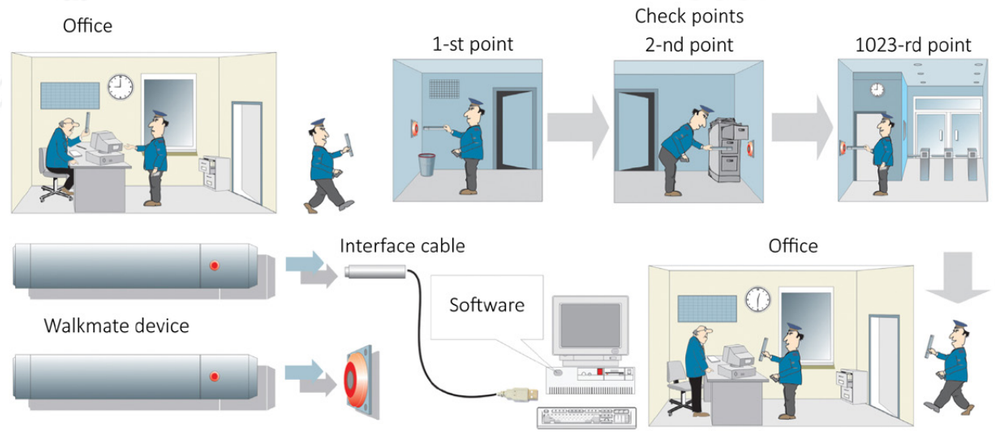
CLE-HT- Ethernet hub

System Configuration

- Walkmate monitoring device.
- Octagram Flex software.
- Set of checkmarks (Touch Memory/iButton) In stainless steel holders.
- USB interface cable for reading information from Walkmate device.
- CLE HT converter for remote reading of information via Ethernet/Internet.

System Operation Description

Special control marks can be installed along predefined routes within the territory or at fixed posts. During patrol rounds, the employee must sequentially apply the Walkmate device to each control mark. The sequence of visited marks and the corresponding timestamps are stored in the device memory. Based on this data and a predefined schedule, the software generates reports on employee activity and performance.



The Walkmate was created in 1996 and since that date, it always helps managers to verify, and employees to approve the honest completion of staff responsibility.

Designed for long-term operation and stable daily use.