ACCESS CONTROL

MATRIX COSEC
Right People in Right Place at Right Time

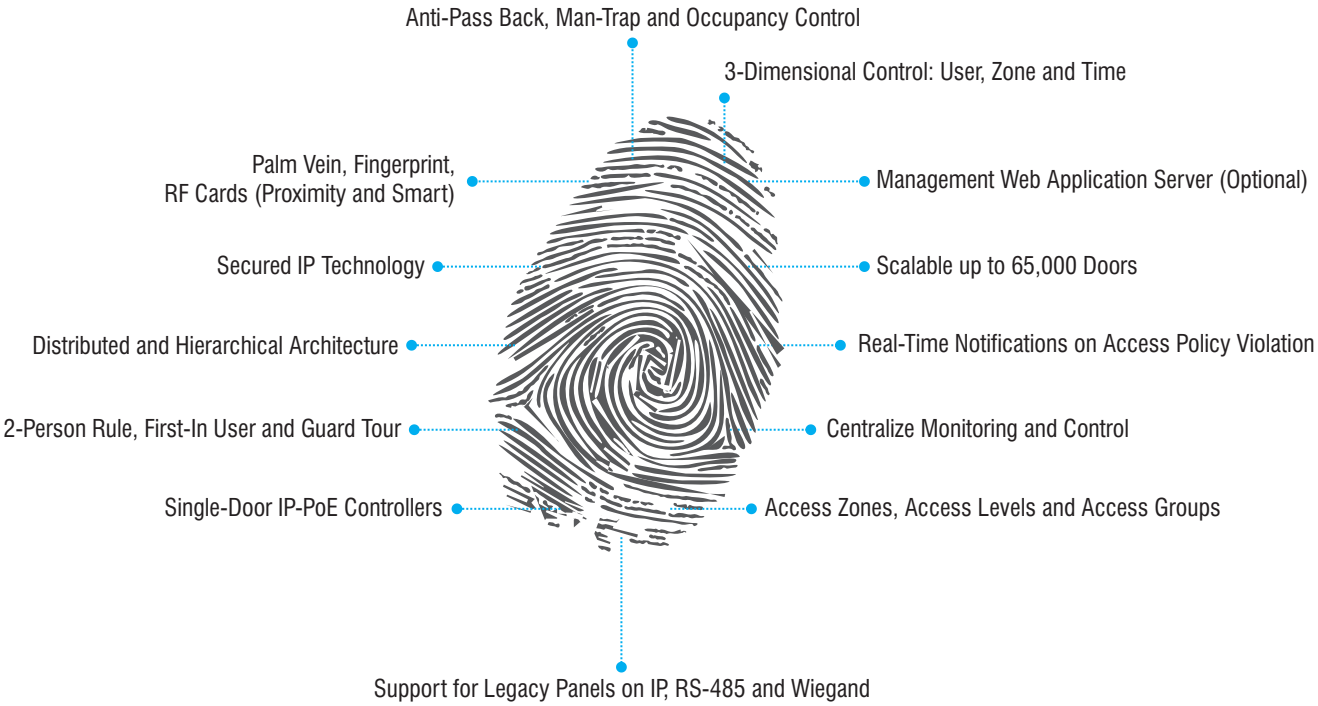
ACCESS CONTROL

Access Control is always a very critical aspect of an organization's overall security strategy. Access Control objective is simple enough to begin with - protect physical, IP and human assets. Essentially, this requires restricting unauthorized people from reaching pre-defined areas while ensuring easy access for authorized people. However, this seemingly simple problem becomes a multi-dimensional challenge when we add dimensions of time, organization hierarchy and asset classification. For example, assets are of hierarchical nature and access to them is aligned with organization functions and hierarchy. Moreover, people's responsibilities begin and end with their working schedules linking their access rights must with their schedules. Therefore an access control solution must address the basic questions of who, where and when with adequate flexibility and scalability.

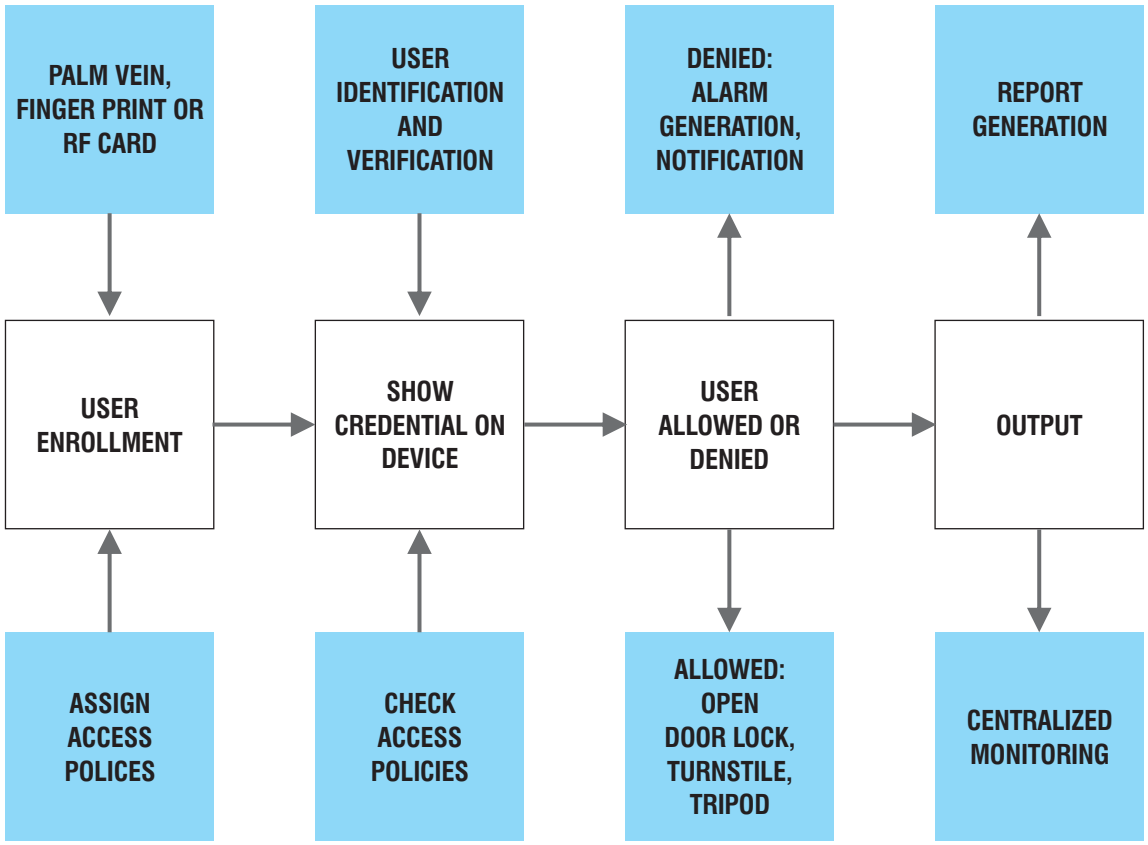
Matrix COSEC is a comprehensive and flexible access control solution designed to meet access control needs of any organization irrespective of its size, locations, layouts, and timings. Matrix COSEC allows controlling access on all three simultaneous dimensions – user, zone and time by answering the three fundamental questions about who, where and when. In addition, value-added features such as anti-pass back, 2-person rule, first-in user, blocked users, door auto relock, guard tour, man-trap and smart card identification ensure foolproof security of physical assets and safety of manpower.

MATRIX
SECURITY SOLUTIONS

MATRIX COSEC ACCESS CONTROL DIFFERENTIATORS



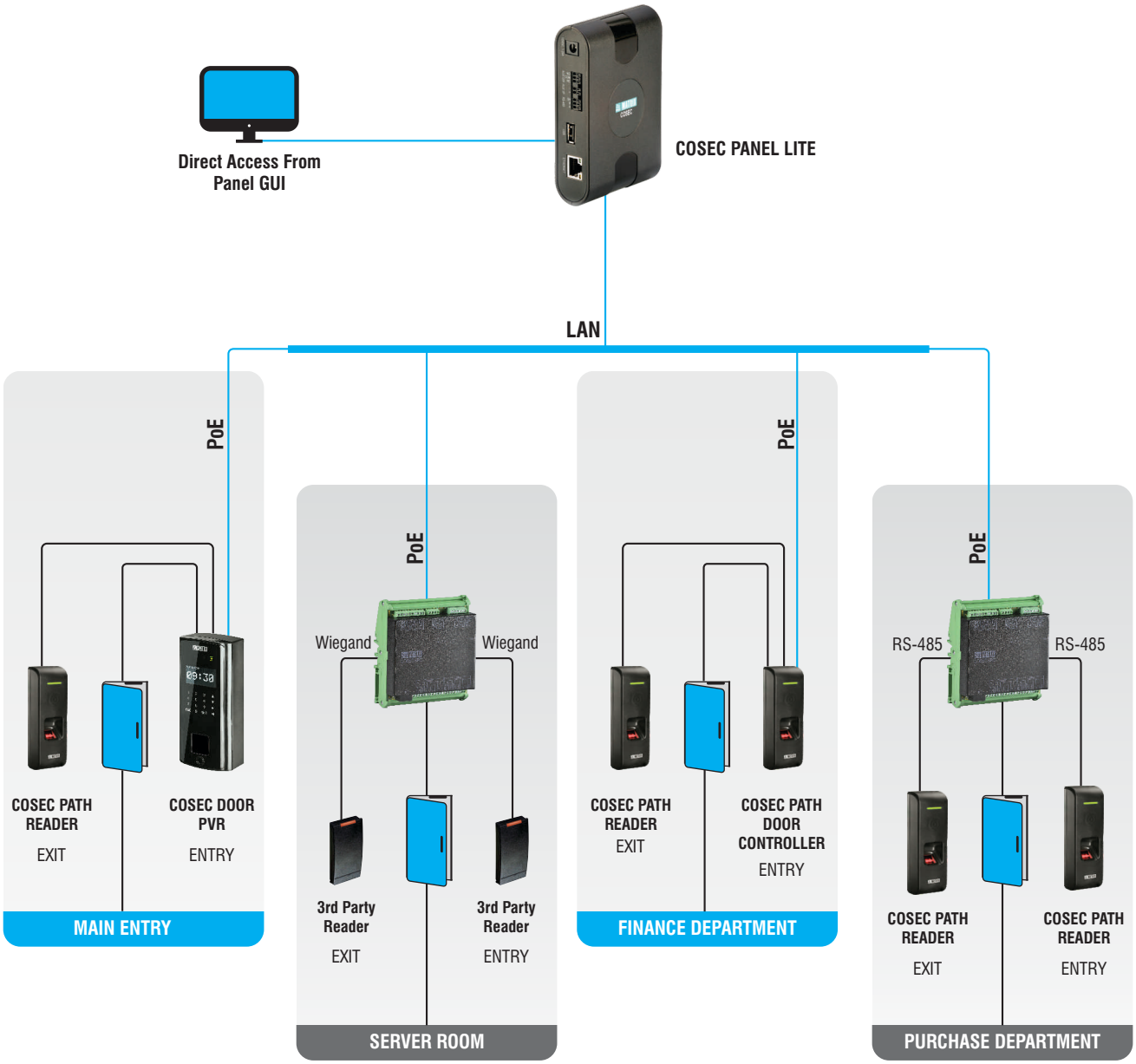
MATRIX COSEC ACCESS CONTROL PROCESS



APPLICATION DIAGRAM

STAND-ALONE ACCESS CONTROL FOR A SINGLE LOCATION

Picture below shows COSEC access control deployment in a single location having 4 separate areas. COSEC door controllers are connected with COSEC PANEL on LAN using PoE. Admin can monitor devices, define policies and generate reports directly from COSEC PANEL without installing any application software.

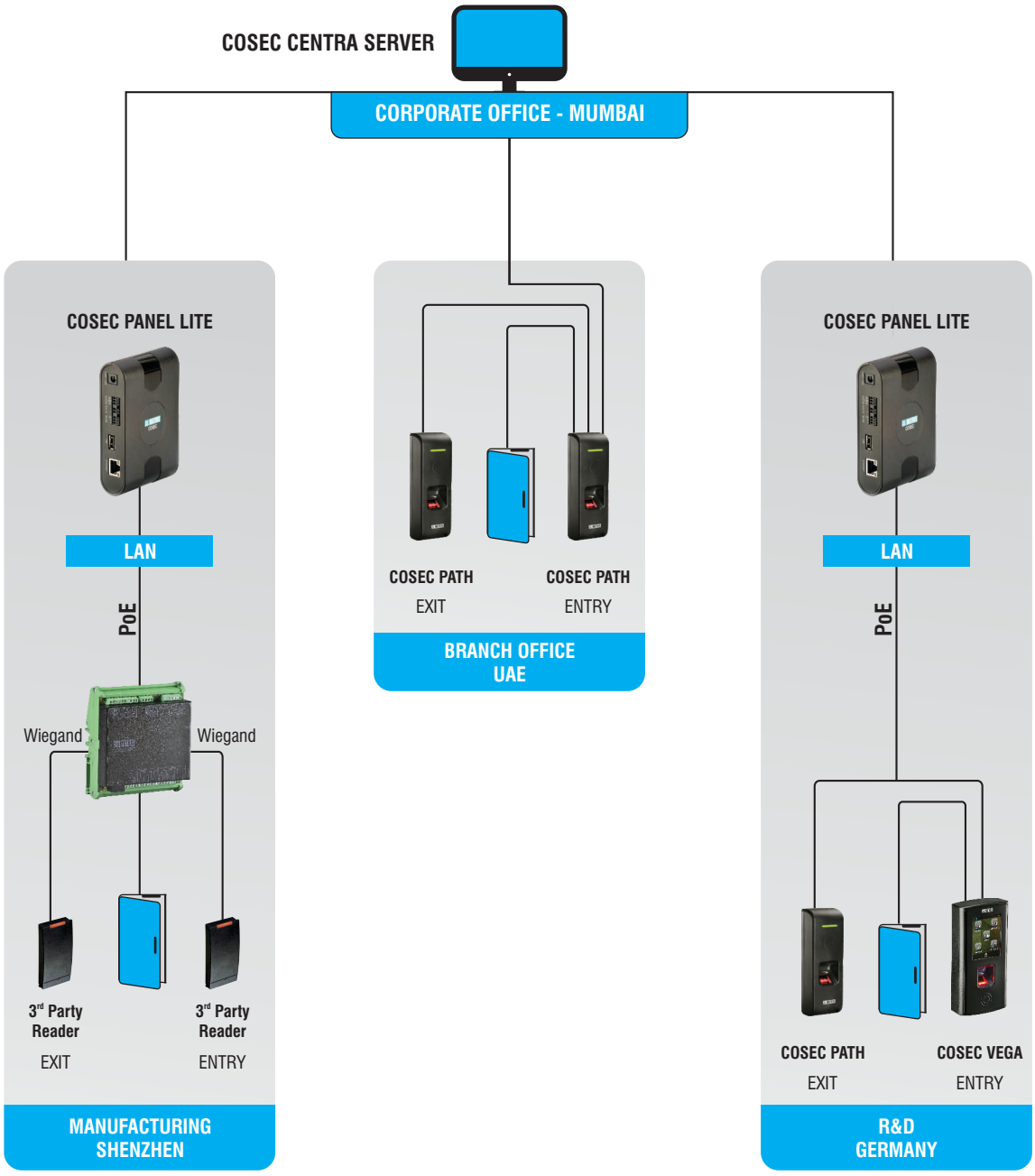


Standalone Access Control: Advantages and Benefits

ADVANTAGES	BENEFITS
Control up to 255 Doors from a Single IP Panel	Eliminate Need for Multiple Panels
Leverage IP Technology	Standard Structured Cabling, Higher Reliability
Connect Existing 3rd Party Readers	Protect Investment in Existing Readers
PoE Door Controller for Powering Readers and Lock	Simplified Installation, High Reliability
Standalone Operation without Server	Eliminate Server Cost
Scalable for Future Expansion	Optimum Investment

MULTI-LOCATION ACCESS CONTROL WITH COSEC CENTRA

Picture below shows COSEC access control application installed in an organization having operations at multiple locations. All COSEC devices are connected to the central server using wired or wireless connectivity to send real-time data at a central place. COSEC CENTRA controls and monitors the entire application from the central place.



Multi-location Access Control: Advantages and Benefits

ADVANTAGES	BENEFITS
Integration of All Locations	Complete Visibility and Better Control
Centralized Management with Local Execution	Well-Defined Enrollment and Access Policies with Fail-Safe Operation
Real-Time Dashboard Views, SMS and E-Mail Notifications	Faster Response to Exceptional Situations
Connect 3rd Party Readers	Protect Existing Investment
2-Person, First-In User and Anti-Pass Back	Advance Access Control for High-Security Areas
Integration with Video Surveillance and Other Applications	Tighter Integration for Value-Added Functions and Enhanced Security

SALIENT FEATURES

Access Zone
Access Zone is a predefined physical area for which specific access policies are required. Access Zones can be created by dividing the organization into various departments such as, R&D, finance, production, marketing and IT. Matrix COSEC controls who (user) goes where (access zone) and when (time) for each Access Zone. Using this feature, employee of one department can be restricted from entering into another department. Sub zones can also be created within an access zone to regulate entries further.

Access Mode
User can enter a zone by showing his credentials (Finger, Palm Vein, RF Card, PIN) to the reader. Admin can select any one or combination of any two or three credential options as an Access Mode on the door controllers to allow to the access zone.

Access Level
Access Level gives privileges to a user to enter a controlled area. Access Levels are assigned separately to zones and users, ranging from 1 to 15. If user access level is greater than or equal to the zone access level, the user is allowed in that zone. Different access levels can be assigned for different times such as working hours, break hours and non-working hours.

Home Zone
Home Zone is a pre-defined area, assigned to a user as his/her regular workplace. COSEC allows access to the home zone without checking user's access level during working and break hours. The same user is restricted from accessing other zones having lower access levels than his home zone access level.

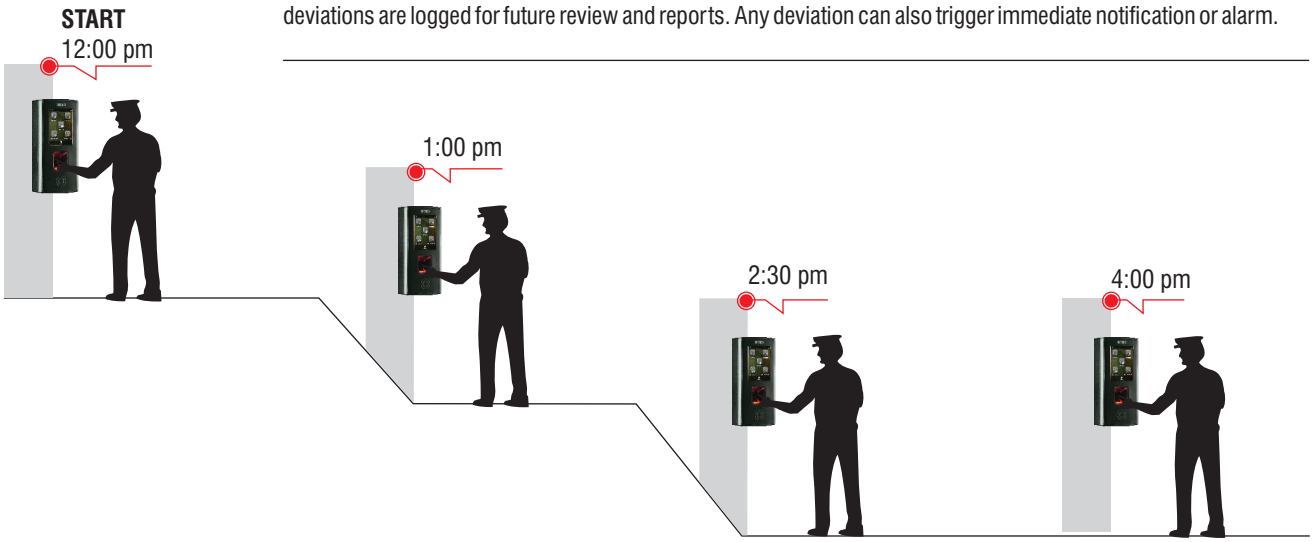
Visit Zone
Visit Zone is an area where a user needs to visit often. COSEC provides flexibility to provide additional access privileges to a user to visit such zone without checking his access level. Visit Zone allows people to access without assigning them higher access levels and thus not allowing access to other zones.

VIP Access
A user holding VIP Access gets the highest level of access privilege allowing him to access any controlled area without checking his access rights. Admin can give VIP access to directors and senior people allowing them universal access without checking their access policies.

First-In User Rule
In some organizations, employees or workers are not allowed to enter certain work areas unless a designated person enters first to ensure higher level of safety and security. Matrix COSEC keeps the door locked until the designated first user registers his entry. Other users are allowed to enter during the working time of the First-In user.

2-Person Rule
Certain sensitive zones contain valuable assets like cash, gold, data, intellectual property, etc. Security of such assets should not be entrusted to any single individual. 2-Person Rule allows entry only when two persons from an authorized group jointly use their access rights within a specified time. 2-Person Rule helps in eliminating frauds. This feature can prevent a single person from entering any hazardous area.

GUARD TOUR
Guard Tour facilitates enforcing vigil patrol of security guards or such pre-fixed movement of other people. The guards have to show their credentials (palm, fingerprint or card) on defined checkpoints at specified time period. Guard Tour can be programmed to cover all required locations in a specific sequence. The maximum time period to complete a tour and total number of such tours in a defined time can also be defined. Successful completions and deviations are logged for future review and reports. Any deviation can also trigger immediate notification or alarm.



Man-Trap
Many times two or more doors are arranged in a sequence to regulate traffic or control dust and heat. The second door should open only after the first has completely closed. Man-Trap offers programmable delay to regulate traffic or the flow rate of people. It also prevents any intruder from entering or escaping in a hurry.

Centralized Monitoring and Control
COSEC offers live monitoring and control to check the system in real-time. It shows the current status of all the site controllers, door-controllers, alarms, input ports and output ports. COSEC shows entries and exits with user photographs live as these events occur. Further, the administrator can control door alarms, lock or unlock doors, synchronize time, delete fingerprints and other performs other access control functions the monitor and control window.

Door Auto Relock
Door Auto Relock is an important security feature for avoiding "tail-gating" of any person with an authorized user. When user shows his credential to COSEC device, the door relay is energized for the pre-defined time to allow the user to enter. After this period, COSEC deactivates the door relay to lock the door and preventing further entries.

Dead-Man Zone
It is essential to track physical safety of an employee who is working in hazardous environments like railroads, mines, chemical labs, etc. Dead-Man Zone makes it compulsory for the employee to confirm his presence at pre-defined interval. If the user fails to punch within the pre-defined duration, an alarm is activated to draw attention of others. This feature can also be used to ensure guards remain awake during night shifts.

Anti-Pass-Back
Anti-Pass-Back prevents a card holder from passing his card back to another person to gain unauthorized entry. Second entry using the same card is allowed only after an exit is registered for every entry. Anti-Pass-Back helps organization in maximizing security by preventing fraudulent use of cards and maintaining an accurate record of the number of people in a specific zone. Anti-Pass-Back works in two modes:

Anti-Pass Back Global: In this mode, system verifies user's exit marking on all zones before allowing re-entry.

Anti-Pass Back Local: In this mode, system verifies user's exit marking on local zone (same zone of entry) before allowing re-entry.

For every Anti-Pass-Back violation, there are options: Hard Anti-Pass-Back records the violation but prevents re-entry. Whereas, Soft Anti-Pass-Back records the violation but allows re-entry.

Anti-Pass Back Forgiveness
Forgiveness works in association with Anti-Pass-Back. With the Forgiveness option on, Anti-Pass-Back status resets automatically at every midnight and allows the user his access rights from the next day.

Do Not Disturb (DND) Zone
Do Not Disturb Zone feature is useful for meeting rooms, conference halls where people inside the area do not want to be disturbed by outside people. Users are restricted to enter DND zone till it is activated on the device. Certain users with VIP access can override DND rule.

Route based Access
Route based Access ensures users follow specific route to reach their destinations preventing them from wandering intentionally or unknowingly. A user must reach locations in a particular sequence which is defined on his smart card. The user cannot access devices which are not part of his route or out of sequence. This feature is very useful in large and sensitive areas like ports, mines, pharmaceutical labs and R&D centers where contract workers or external agencies need to reach their place of work following defined route.

Occupancy Control
Occupancy Control is used to control the number of users within a designated zone. Maximum number of users in a zone can be defined and when the count reaches this limit, COSEC blocks additional user from entering the zone. This is useful for facilities like seminar halls, conference rooms and cafeterias where space is limited for certain number of people.

Smart Identification
Smart Identification is very useful where a large number of users are accessing one device. User's fingerprint and other information are stored on the smart card instead of the device. User has to first show his smart card following his credential. COSEC allows access and marks attendance based on the result.

Blocked Users
Matrix COSEC classifies certain users as blocked users and prevents them from entering specified zones. A blocked user is treated as a deactivated user and all the access privileges are withdrawn temporarily. A user can be blocked because of following three reasons:
(1) User is absent for more than a predefined time period
(2) Consecutive unauthorized attempts to access a zone
(3) Access attempts by an authorized user exceed the maximum number of attempts allowed within a time limit

Additional Security Code
Duplication or fraudulent use of cards can create a security threat for an organization. COSEC provides enhanced security by encoding an additional security code in the smart card.

Time Stamping
COSEC offers Time Stamping functionality through its integration with video surveillance systems like DVR and NVR. COSEC triggers the video surveillance system to take snapshot of the person accessing a door and generates reports with the photograph. Time Stamping restricts proxy punching – unauthorized user entering using someone else's card.

Who's-In
Who's-In allows COSEC administrator to identify all the users present inside a zone. COSEC generates a list of users inside any specified zone at given time helping in emergency evacuation.

COSEC ARC

Single Door IP Panel with PoE

COSEC ARC is an intelligent compact IP panel with PoE for a single door. ARC dramatically simplifies access deployment. COSEC ARC works in two modes – standalone with COSEC PANEL or centralized with COSEC CENTRA application server. The state-of-the-art COSEC ARC can control 2 readers on wiegand or RS-485, door lock and other auxiliary devices making it an ideal solution for any access control installation.

Key Features:

- Compact, Single Door IP Panel With PoE
- Operation Modes: Standalone With COSEC PANEL or Centralized with COSEC CENTRA
- 2-Readers on Wiegand or RS-485
- Standby Operation when Network Connectivity
- Support Data and Power on PoE for Readers and Door Lock
- 10,000 Users and 1,00,000 Events Support
- Aux-In and Aux-Out Port to Connect 3rd Party Devices
- Din Rail and Box Mounting

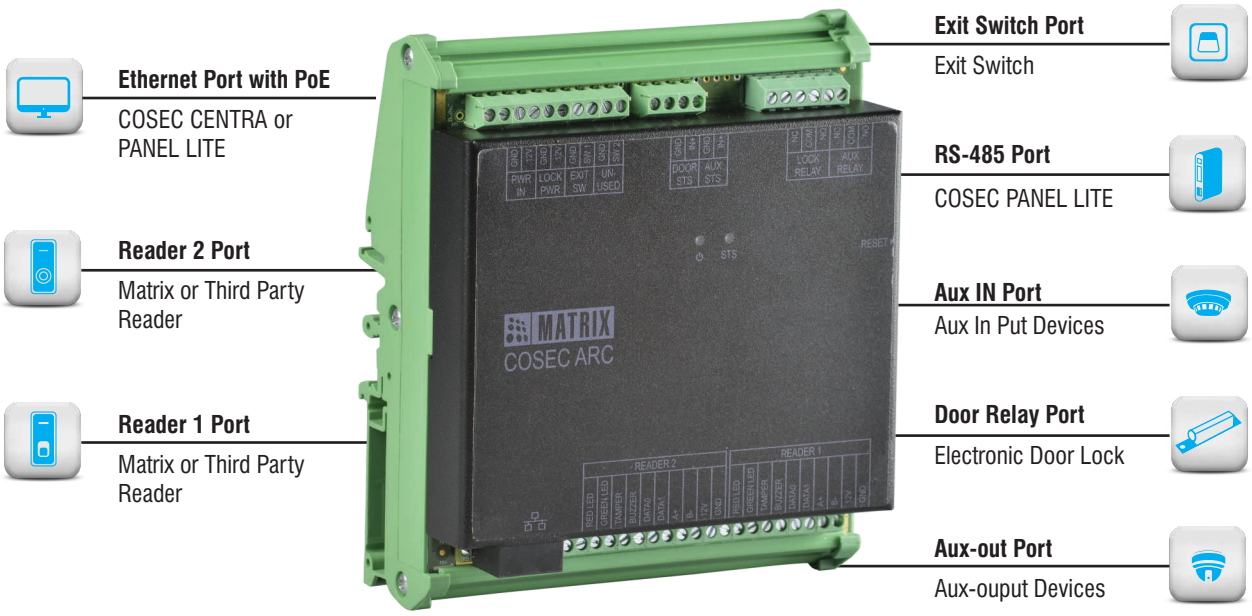
COSEC ACCESS CONTROL DEPLOYMENT

	STANDALONE	NETWORK
Architecture	2-Level Hierarchy with PANEL as Root and Devices as Nodes	3-Level Hierarchy with COSEC CENTRA as Root; PANELs as location controllers and Devices as Nodes
Need for COSEC PANEL?	Required	Optional. Required only for Special Access Control Features
Devices and Readers	PATH, VEGA, DOOR and PVR	PATH, VEGA, DOOR and PVR
Users	10,000	UP to 1 million
Door Controllers	255 per COSEC PANEL	65,000 with COSEC CENTRA 255 per COSEC PANEL
Management and Control	COSEC PANEL Web Pages	COSEC CENTRA Server Web Pages
Live Status Monitoring	COSEC PANEL Web Pages	COSEC CENTRA Server Monitor Application
Application	Single Location	Multiple Locations

MATRIX ARC POE PANEL V/S CONVENTIONAL MULTI-DOOR PANEL

MATRIX ARC ONE-DOOR PANEL	CONVENTIONAL MULTI-DOOR PANEL
IP Technology on Existing LAN-WAN	Non-Standard and Proprietary Networking
Industry-Standard CAT5 and CAT6 Wiring	Proprietary, Non-Standard Multi-Core, Long and Expensive Wiring
Installation Near the Door Reduces Wiring and Improves Reliability	Panel Installed in a Central/Server Room Far from all the Doors
PoE Powers PANEL, Readers and Lock; no Need of Local Power Point or Backup	Power is Fed either from Central Location or Multiple Power-Points
Neat, Elegant, Reliable and Easy-To-Maintain Installation	Clumsy, Failure-Prone Installation
Distributed Architecture; Robust Security	Single-Point of Failure
Compact, Modular and Easy to Scale	Location of a Multi-Door Panel Restricts adding New Doors Due to Distance and Wiring Constraints
Industry-Standard DIN Rail Mounting	Non-Standard Wall Mounting
COSEC PANEL Integrates Up to 255 Door Controllers with Interlinked Value-Added Features	Support for 4, 8 and 16 Readers are Most Common Configurations
Centralized Management and Control Using COSEC PANEL Web Pages from anywhere	Dedicated Software to Manage Multiple Panels

COSEC ARC INTERFACES



TECHNICAL SPECIFICATIONS

	COSEC ARC DC100P	COSEC ARC DC100S
Readers	2 Readers	
Door	1 Door	
Users	10,000	
Event Buffer	1,00,000	
Input Power	PoE or External Power Adapter (12VDC@2A)	External Power Adapter (12VDC@2A)
Communication	Ethernet (with COSEC PANEL or COSEC CENTRA)	RS-485 (with COSEC PANEL LITE only)
CPU	32-Bit Microcontroller	
Flash Memory	512KB Internal Flash + 4MB External Flash	
RAM Memory	128KB SRAM	
LED	2 (Device Status and Network Status)	
READER		
Connections	DATA0, DATA1, LED0, LED1, BUZZER, Tamper, Power, GND, RS485A, RS485B	
Power	12VDC at max. 150ma per Reader	
Reader Types	2 Reader Port for Wiegand or Matrix Reader	
Interface	Wiegand and RS-485 (for Matrix Reader only)	
Max Distance	400meters (on RS-485), 100meters (on Wiegand)	
IN/OUT		
Exit Switch Port	Yes	
Door Status Sense	Programmable NO, NC , Supervised	

Door Lock Relay	Relay SPDT, Form C, Max 5A@24 VDC
AUX-In Port	One
AUX-Out Port	Form C SPDT Relay output, max 5A@24 VDC or 5A@230VAC
COSEC PANEL LITE	
Maximum Door Controllers	255
Users	25,000
Event Buffer	500,000
Input Power	External Power Adapter (12VDC@2A)
Communication	Ethernet or RS-485
Mode of Operation	**Standalone:** Use Built-in GUI to Control Matrix Door Controllers and Users **Network:** Used for Feature and Capacity Enhancement for Access Control and Connected with COSEC CENTRA
Software	Built-in Interface in a Standalone mode with Matrix Door Controllers
Door Controllers on Ethernet	255
Door Controllers on Ethernet	32
AUX-In Port	One
AUX-Out Port	Form C SPDT Relay Output, Max 5A@24 VDC or 5A@230VAC
Door Type Support	COSEC ARC, COSEC PATH Series, COSEC VEGA Series, COSEC DOOR PVR, COSEC DOOR FOP
Key Features Support in Standalone Mode	User Configuration and Enrollment, Device Configuration, Live Monitor, 2-Person Rule, Access Route, First-IN User Rule, Smart Card Access Route, Time Zone, Shift Schedule, Holiday Schedule, Access Group, Functional Group, Blocked User, Access Zone, Special Function, User Account, Event Log, Dashboard, Anti-pass Back, Alarm Management, Occupancy Control, Dead Man Zone, DND, Duress Detection and IO linking

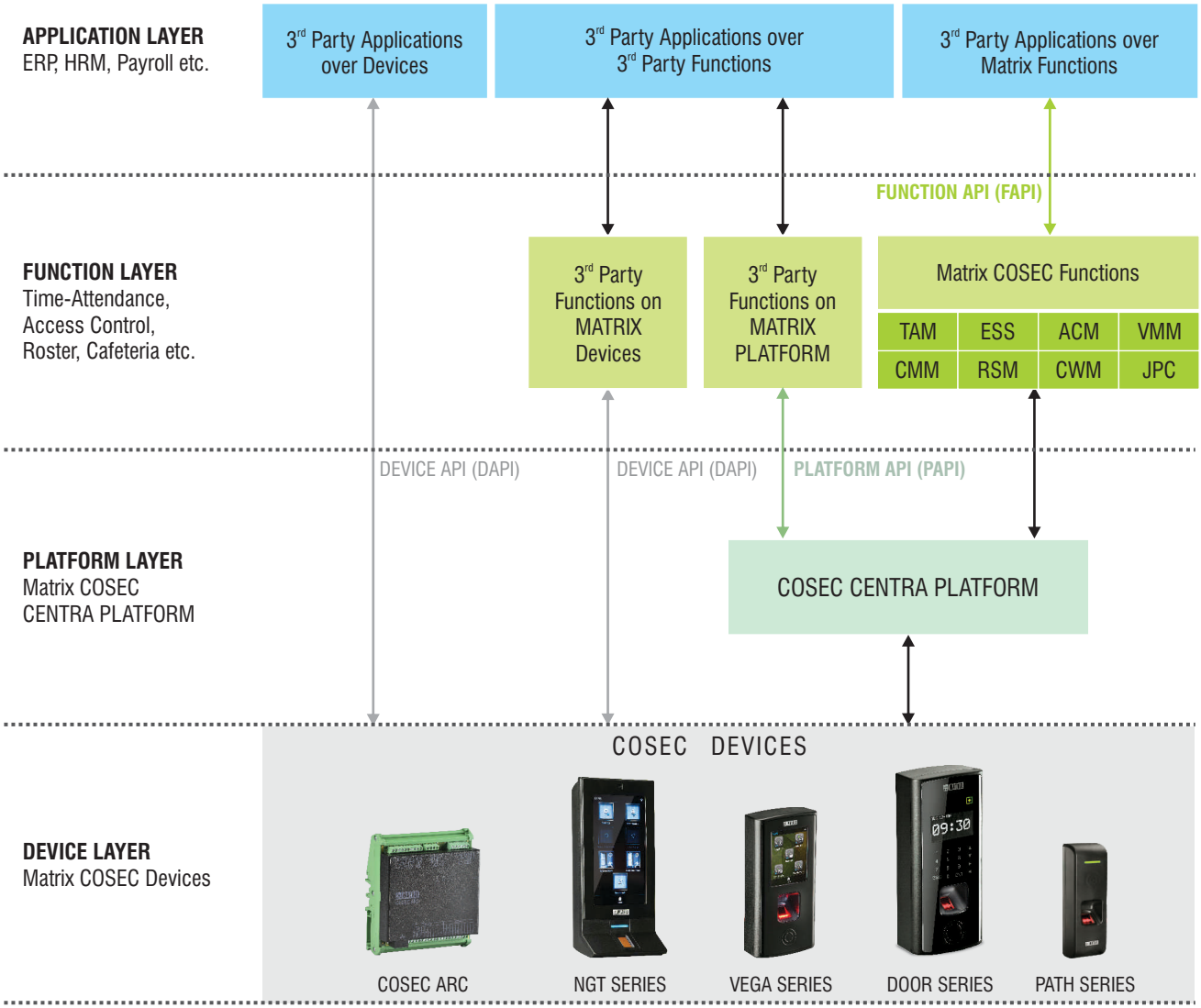
COSEC IO CONTROLLER

COSEC ARC IO800 is an input and output controller to control 8 input and 8 output 3rd party devices and perform multiple applications.

COSEC ARC IO800	
INPUTS	
No. of Inputs	8
Input Type	Four State Supervised Inputs
OUTPUTS	
No. of Outputs	8
Output Type	Form C Dry Contact Relays, Each with NO, COM and NC Contacts
Relay Contact Ratings	5A @24VDC
COMMUNICATIONS	
Communication	Ethernet and/or RS-485
PoE	YES
POWER	
Input Power	12VDC @1A (for Device Operation)
LED indication	2 LEDs (For Device Status and Network Status)

MATRIX COSEC INTEGRATION

Matrix COSEC offers flexibility to interface with any third-party applications at three different levels as shown in the diagram.



Device Level Integration
Matrix COSEC devices come ready with Device API for 3rd party application developers to develop their applications using Matrix COSEC devices. Matrix COSEC Device APIs (DAPI) allows other third party applications to communicate directly with the COSEC devices without need for COSEC CENTRA PLATFORM.

Platform Level Integration
Many application developers need application ready APIs. They expect the hardware vendors to manage device configuration, communication, enrollment and all such lower-level tasks. This saves them from the complexity of physical interfaces, network management, communication, device configuration, template distribution, etc. For such developers, Matrix COSEC CENTRA offers PLATFORM APIs (PAPI). Matrix COSEC CENTRA PLATFORM manages all the lower level tasks shielding application developers from the tedious lower-level software engineering and offers them application-ready interfaces for simple and quick programming. Using PAPI, they can build their applications like time-attendance, access control, visitor management, cafeteria management, contract labor management and roster management on top of COSEC CENTRA PLATFORM.

Function API
This is the highest level of interface Matrix COSEC offers for application to application integration. Using Function APIs (FAPI), Matrix COSEC applications like Time-Attendance can be integrated with other 3rd party applications like payroll, ERP, HRMS and CRM. Matrix COSEC is integrated with many widely popular applications like SAP, Oracle, Microsoft Dynamics NAV/AX, Tally and others.

COSEC DOOR CONTROLLER INTEGRATION

FEATURE LIST

Access Control
- 2-Person Rule
- Blocked User
- First-in User Rule
- Do Not Disturb (DND)*
- Occupancy Control
- Guard Tour*
- Fire Alarm Integration

Access Mode
- Card Only
- Biometric Only
- Card + Biometric
- Card + PIN
- Biometric + PIN
- Card + Biometric + PIN
- Card or Biometric or PIN
- 1:1, 1:G or 1: N Verification
- Bypass Biometric
- Zone-wise Card, Biometric, PIN

Access Policies
- Home Zone*
- Visit Zone*
- Access Levels*
- Smart Identification
- Physical Zones
- Short Duration
- Time Zones*
- User Groups
- VIP Access
- Route based Access
- Dead-Man Zone*

Anti-Pass Back
- Hard/Soft
- Local/Global
- Forgiveness

Door Management
- Door Auto Relock
- Man-Trap (Door Interlock)*

Alarm
- Door Communication
- Door Controller Tamper
- Door Fault
- Door Forced Open
- Door Held Open
- Door Lock Tamper
- Duress Detection
- External Reader Tamper
- Network Fault
- Zone Monitor (Dead-Man)*
- Monitor, Acknowledge and Clear

Input-Output Ports
- Control
- Linking*
- Status

SMS and Email Alerts
- Door Force Open
- Door Offline
- User Allowed
- User Denied
- Guard Tour Completion
- Access Route Violation
- Anti-Pass Back Violation
- Duress Detection
- Shift based Access Violation

Blocked Users
- Absentee
- Unauthorized Attempts
- Usage Count

ACCESS CONTROL REPORTS

- Access Group
- Access Zones
- Guard Tour
- Input Output Linking
- Time Zone
- Door Held Open
- Zone Access by User
- First-In User
- 2-Person Rule
- Who is In
- Access Denied

* COSEC PANEL is required.

ORDERING INFORMATION

COSEC PE ACM	Access Control Software License for 100 Users
COSEC GE ACM	Access Control Software License for up to 500 Users
COSEC ME ACM	Access Control Software License for up to 1,000 Users
COSEC LE ACM	Access Control Software License for up to 1 Million Users

MATRIX CUSTOMERS

MANUFACTURING
- Adani Infrastructure
- L&T Limited
- Linde Engineering
- TATA Steel
- Reliance Industries
- Tyco Electronics
- Seforge Limited
- AIA Engineering
- Gujarat Ambuja Exports
- Aujan, KSA
- Al Khodari, KSA

GOVERNMENT
- Indian Air Force
- Ministry of Interiors, KSA
- BHEL
- Power Grid
- AP Police
- Dubai Statistics Center
- Jeevika Development Society

BFSI
- State Bank of India
- Reserve Bank of India
- Gruh Finance
- Mahindra & Mahindra
- Shriram Finance

EDUCATIONAL INSTITUTE
- British School
- MIT
- Presidency Group of Colleges
- Indian Institute of Science
- Rishikul Vidyapeeth

HEALTHCARE
- Gold's Gym
- Fortis Memorial
- Dr. Reddy's Foundation
- Apollo Health & Lifestyle
- CIIGMA
- VIVA Gym, South Africa

IT
- Wipro
- Tata Consultancy Services
- Risk Management Solutions
- Intec Capital Ltd.
- YOU Telecom and Broadband

CONSTRUCTION
- Rustomjee Group
- Raheja Atlantis
- Shapoorji & Palanji
- Sterling & Wilson
- AFCONS Construction

OTHER SECTORS
- Khimji Ramdas, Oman
- Al Majdouie, KSA
- Al Khodari, KSA
- TCI

ABOUT MATRIX

Established in 1991, Matrix is a leader in Telecom and Security solutions for modern businesses and enterprises. An innovative, technology driven and customer focused organization; Matrix is committed to keep pace with the revolutions in the telecom and security industries. With around 30% of its human resources dedicated to the development of new products, Matrix has launched cutting-edge products like IP-PBX, Universal Gateways, VoIP Gateways and Terminals, GSM Gateways, Access Control and Time-Attendance Systems, Video Surveillance System and Fire Alarm Systems. These solutions are feature-rich, reliable and conform to the international standards. Having global footprints in Asia, Europe, North America, South America and Africa through an extensive network of more than 500 channel partners, Matrix ensures that the products serve the needs of its customers faster and longer. Matrix has gained trust and admiration of customers representing the entire spectrum of industries. Matrix has won many international awards for its innovative products.

MATRIX
SECURITY SOLUTIONS

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Due to continuous technology upgradations, product specifications are subject to change without notice.