

# PRODUCTS & SOLUTIONS BROCHURE

Professional Access Control & Smart Building Solution

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#### COMPANY BACKGROUND

Matrix Research Limited, renowned as ACX, stands as a distinguished supplier of a comprehensive Access Control System and Smart Building Solutions with IoT applications to corporations worldwide. With an unwavering commitment to excellence, we bring forth our profound expertise and extensive experience to create cutting-edge products and services that empower secure access to doors, venues, and facilities. Through the integration of advanced technology, ACX revolutionizes the identification verification and processes, streamlined ensuring operations and fortified security measures for our clientele.

Our commitment to Design & Innovation for humans is our purpose. We design secure world-class access control systems that excel in both innovation and technology, gradually positioning ourselves as the market leader. Our continuous pursuit of excellence drives us to deliver the most advanced and disruptive solutions to the market, providing trusted products to our customers and enhancing the entire end-user experience.



COMPANY BACKGROUND

# MISSION

Humans are the center of ACX's focus. We keep on inspiring and innovating in Access Control and Smart Building Solutions while providing a wide array of choices to meet people's needs.

Our goal is to deliver unparalleled efficiency and convenience to our users. This principle has helped **AC**X establish its presence in Hong Kong and will allow the company to expand its operations into APEC in the next 10 years.

# PARTNERSHIPS

ACX is the supplier of choice for OEMs, system integrators and application developers whose goal is to conveniently and cost-effectively solve building and facility access problems. Our trustworthy partners include NXP, Milestone, LEGIC, Fujitsu, Boonedam, SenseTime, Face++, Octopus, and Asiabots.

# CERTIFICATIONS

ACX has successfully registered more than 35 global patents and certifications. Our R&D center has achieved ISO 9001, which means our quality system governing the design, manufacture, sales, and distribution of our products has been verified by third-party audits.



#### LOCATIONS

Headquartered strategically at the Hong Kong Science Park, which is the largest R&D core base in Hong Kong, ACX also has offices, production facilities, and R&D centers in Taiwan and China, laying the foundation for future overseas expansion.

#### SCRAMBLE QR CODE PATENTS

ACX takes pride in having received three patents for Scramble QR Code for Access Control System from the Hong Kong Intellectual Property Department (HKIPD). The code changes dynamically every second and is non-transferrable, with the capability of being integrated with into any third-party systems and applications.



Scramble QR Code in Mobile Virtual Card

Patent number: HK30033478

- Scramble QR Code technology being embedded into Mobile Virtual Card application
- User-defined QR code validation time tolerance
- Possible integration with end users' mobile application
- Compatible with Android and iOS

Non-transferable Scramble QR Code in Mobile Virtual Card Patent number: HK30033982

- Once the Scramble QR Code weblink is activated, it cannot be opened by another device
- Non-transferable technology to prevent counterfeiting



# SCRAMBLE QR CODE PATENTS

#### DISRUPTIVE TECHNOLOGIES



- Offline Bluetooth & Scramble QR Code mobile virtual key
- The QR code is changed in every second offline
- Code impossible to copy
- Contactless & hygienic
- Compatible with ACX Access Reader
- Patents in different countries



- Biometric Authentication Technology based on Fujitsu Palm Vein Recognition
- High level of security and accuracy
- Easy to implement and use
- Contactless & hygienic
- Integrated with Fujitsu PalmSecure-F Pro sensor



- Complete authentication process by identifying individuals' facial patterns
- Speedy and secure verification process
- Contactless and hygienic
- Integrated with SenseTime / Face++



- Multi-tech readers successfully integrated with Octopus, Bluetooth, and QR Code Technology
- Holder of Octopus Holding Limited Type Approval Certificate
- Enhance user experience

# PRODUCTS & SOLUTIONS OVERVIEW

#### **PRODUCTS**







#### SOLUTIONS



















## X.90 INTEGRATED SYSTEM PLATFORM



- Compatible with Windows 11, MS SQL 2022 or after
- One database covering multi-systems
- High security scramble data encryption during data exchange from ACX panels to PC software
- Multi-threading programming, high speed response
- Multi-language support
- Login user access rights controlled by application, department, and device

# SYSTEM COMPONENTS



Access Control



Lift Destination Control



Time and Attendance



Visitor Management



Facility Booking



Electronics Map Monitoring



Smart Mailbox



Smart Locker



Mobile Patrol



Surveillance System



Shuttle Bus



Turnstile Control

#### CREDENTIAL TECHNOLOGIES

# CONTACTLESS SMART CARD



Low Frequency (125KHz): Read only HID and EM



High Frequency (13.56MHz):

CSN for LEGIC, Mifare Series, SONY Felica and PicoPass.

Read and write for LEGIC, Mifare Classic / Plus / DESFire / HID iCLASS



Ultra-High Frequency (860MHz - 960MHz): Read and write 128bits EPC memory

#### **MOBILE**



Bluetooth:

2.4GHz Bluetooth 4.0+



Scramble OR Code Scramble QR Code:

QR code changes in every second for anti-counterfeiting; non-transferable; time and frequency restrained

#### **BIOMETRICS**



Recognition

Facial Recognition:

Middle range handsfree solution to securely and quickly verify an identity using Thermal Infrared (IR) Camera, partnering with SenseTime & Face++



Palm Vein:

Pioneered Palm Vein pattern recognition; most accurate human biometric authentication technology using industry-leading vascular pattern biometric technology, partnering with Fujitsu PalmSecure-F Pro sensor



Fingerprint:

Non-transferrable feature allowing an accurate tracking of workforce; a high level of accountability at work

# ACCESS READERS − X SERIES (13.56 MHz)















**X3** 







# ACCESS READERS — X SERIES











Facial Recognition



Palm Vein

- Flush Mount Design, 3mm thickness on wall
- Reader total thickness 25mm only
- Dimensions: 190mm(W) x 90mm(H) x 25mm(D)

# ACCESS READERS - W SERIES





13.56 MH:



blueto

- Flush Mount Design
- Bluetooth and Contact-less Multi Technology Reader
- Support 13.56 MHz, ISO 14443 A, & ISO 14443 B, ISO 15693, and Bluetooth 4.0
- Red/Green/Blue or mixed color LED square ring for visual notification
- User-defined reader's access granted/denied LED & Buzzer ON/OFF time and interval
- Wiegand, OSDP standard, OSDP secure, and the ACX proprietary scramble encryption format
- Bluetooth scan range: 1 to 10 meters
- Dimensions: 86mm (L) x 86mm (W) x 5mm (D)
- Waterproof IP65





13.56 MHz



Bluetooth



QR Code

- Flush Mount Design
   QR code, Bluetooth and Contact-less Multi Technology Reader
- Support 13.56 MHz, ISO 14443 A, & ISO 14443 B, ISO 15693, and Bluetooth 4.0 and QR code
- Red/Green/Blue or mixed color LED square ring for visual notification
- User-defined reader's access granted/denied LED & Buzzer ON/OFF time and interval
- Auto time synchronization when connected to internet
- Support fixed QR code and ACX scramble QR code format Wiegand, OSDP standard,
   OSDP secure, and the ACX proprietary scramble encryption format
- QR Code min. resolution: 5 mil, 1 mil = 0.0254 mm, invisible infra-red lights
- QR Code scanning angle: ± 60° for left & right, ± 40° for frontand back, 360° rotation
- QR Code scan range: 4cm to 22 cm
- Bluetooth scan range: 1 to 10 meters
- Dimensions: 86mm (L) x 86mm (W) x 5mm (D)
- Waterproof IP65

W SERIES

## ACCESS READERS — Q SERIES





13.56 MHz



Bluetooth



Scramble QR Code



Facial Recognition

- Support Smart Card, Scramble QR Code, Bluetooth, Facial Recognition Technology
- Work with **AC**X Mobile Virtual Card app
- SenseTime / Face++ Facial Technology
- Integrate SensePass Facial Recognition Technology into an LCD screen to achieve >99% accuracy
- Dark enclosure with luxury design & slim body
- Wiegand, OSDP and ACX scramble encryption output
- Size: 96mm(W) x 248mm(H) x 22mm(D)

Q SERIES

#### ACCESS READERS - V SERIES







Bluetooth

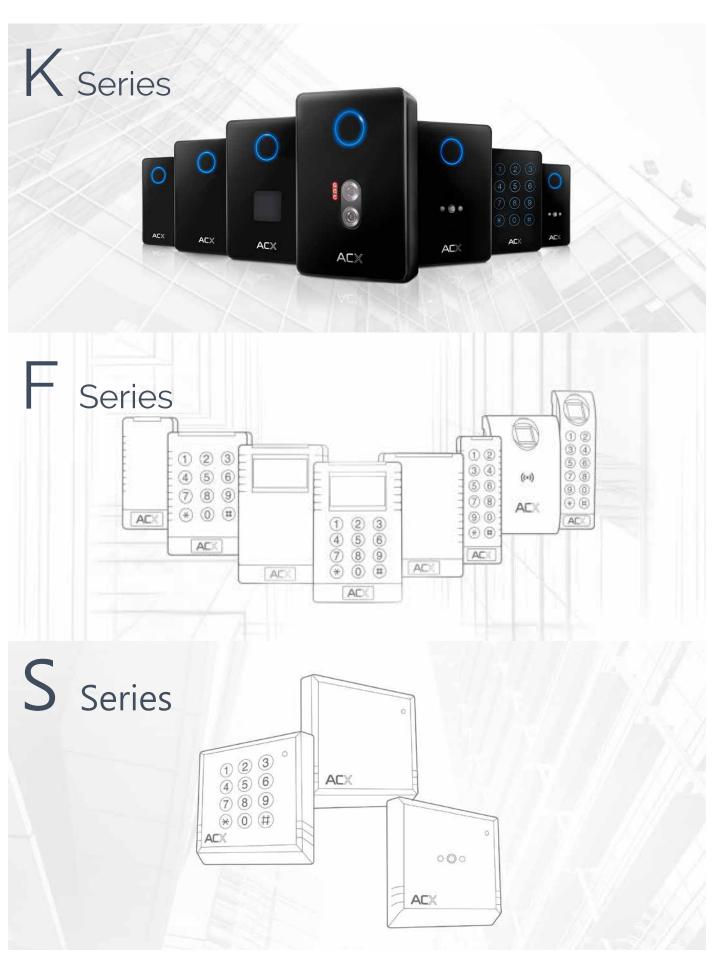


QR Code

- Flush Mount Design with 6mm Slim Body
- Support Octopus, Scramble QR Code, Bluetooth
- Work with ACX Mobile Virtual Card app
- QR Code changes every second offline
- The 1st & only company in HK integrating Octopus Technology into QR code reader
- Holder of the Octopus Holding Limited Type Approval Certificate
- Wiegand, OSDP and, ACX scramble encryption output
- Size: 94mm(W) x 196mm(H) x 55mm(D)
- 6mm thickness on wall



## ACCESS READERS - K · F · S SERIES



#### **TURNSTILE & RECOGNITION DEVICE**

## AéroWing Gate



- 9 dual-direction control modes
- LED lights status / direction indication
- Advanced protection to prevent electrical leakage, pinching, and collision
- Remote control and configuration, user interface personalization
- High detection accuracy using laser sensor
- 2D laser module: ground-level safety sensor for child-friendly passage
- Standard external electrical interface, with photoelectric safety isolation
- Enhanced anti-tailgating design
- Design patented in Hong Kong

# TURNSTILE & RECOGNITION DEVICE

#### **TURNSTILE & RECOGNITION DEVICE**



- Sleek and fashionable design with an aluminum housing for durability.
- Utilizes both single and dual lens configurations for face recognition.
- Single lens used for left and right sides of the fast lane; dual lens in the middle section.
- Face recognition lens accommodates a height range from 80 cm to 190 cm.
- Designed for inclusivity, suitable for children and individuals in wheelchairs.
- Balances aesthetic appeal, durability, and user accessibility.
- Face++ 2023 edition Facial Recognition Technology
- Facial recognition accuracy ≥ 99%
- Mask detection accuracy ≥ 99%
- Size: 70mm (W) x 35.9mm (H) x 100mm (D)











Recognition



QR Code

- Contactless temperature sensor and face mask detection
- Embedded rear facial camera to solve lighting problem
- Recognize 10,000 users in just 1 second in order to verify user identities
- Scanning range up to 3 meters
- Built-in black body leads to an increase in the temperature accuracy level ±0.3°C
- Superior low-light performance
- Full HD support at up to 1080P 60fps for superior video performance
- Auto black level calibration
- Face++ / SenseTime Facial Recognition Technology
- Temperature measurement time within 100ms
- Facial recognition accuracy ≥ 99%
- Mask detection accuracy ≥ 99%
- Size: 78mm(W) x 72mm(H) x 120mm(D)

#### **CONTROLLERS**

# Door Access Controller:







8901 Network Single Door Access Panel



8902 Network Two Door Access Panel

# Lift Controller:



8906 Network Lift Control Panel



8907 Network Lift Control Expansion Panel



8916 Advanced Network Lift Control Panel



8917 Advanced Network Lift Control Expansion Panel

# Inputs Controller:



8903 Network Alarm Panel

# Turnstile Gateway:



8980 Turnstile Gateway

# Advanced Smart Mailbox / Locker Controller:



8918 Network Mailbox Master Panel



8919 Mailbox Expansion Panel

#### Locker Controller:



8926 Network Locker Master Panel



8927 Locker Expansion Control Panel

#### **SMART TOOLS**

# 2398 Intelligent Door Release



- The infrared is encrypted, which is not affected by the infrared remote control devices.
- Two-in-one combining both a door release button and a resettable call point
- Small in size, it can be conveniently installed on Asia & US electric gang boxes.
- Cost-saving by eliminating two electric gang boxes into a single electric gang box and the installation.
- Contactless and auto-sensing technologies, distinguishing itself from traditional door release buttons for normal operation
- Downtime is minimized compared to resuming the glass-breaking device
- Circle Ring LED

## 2310 Resettable Call Point

- Power input: 12V/24V A.C./D.C.
- Individual setting for 7 color LEDs and OFF in both
   Normal and Tamper modes
- Buzzer available in Tamper mode
- Micro Switch current rating: 2.5A 125V AC
- 2 sets Micro Switch
- Dimensions: 87mm(W) x 91mm(H) x 53mm(D)



#### 2309 Infrared Sensor Release Button



- Contactless
- Suitable for in-house installation
- Power input: 12V D.C.
- Contact rating: 12 28V, 3A
- Detection range: 0.1mm 10cm
- Dimensions: 86mm(W) x 86mm(H) x 29mm(D)
- 5mm thickness on wall

#### 2300 High Security Key Switch

- RED (Normal) / GREEN (Key Open Door) /
   OFF (Tampered) color LED indication
- Support Fail Safe Electronic Lock
- Lock status remains UNCHANGED even in short or open circuit in the cable
- Reset button in 2302 to activate the key switch function
- E-Lock power from panel or external
- KEY open / close signal output
- Tamper health / trigger signal output

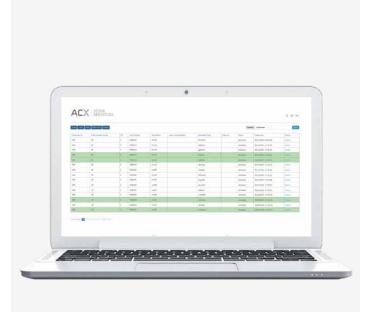


SMART TOOLS

#### VIRTUAL CARD PLATFORM & APP

#### Virtual Card Web Platform

- A web based application which can be installed on internet or intranet
- Admin can create, delete, expire, and reactivate the virtual card
- Admin can easily view all cardholder profiles
- The unique activation code will be sent to the user by email
- Once entered the activation code in the ACX mobile virtual card app, the user can access with Bluetooth or Scramble QR Code





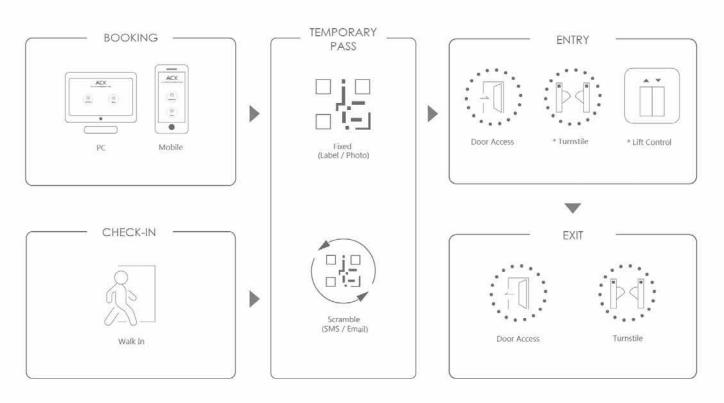
#### Mobile Virtual Card APP

- Support Bluetooth and QR Code Technology at the same time
- Work in offline mode
- Scramble QR Code: access QR code scrambles every 5 seconds to prevent others from copying
- Bluetooth: three operation modes (Button, Shaking, and Hands-Free)
- Access to doors, turnstiles, lifts, washrooms, car parks, mailboxes, lockers, and different facilities, etc.
- Environmentally friendly and sustainable by reducing card production and waste
- Hygienic solution as totally contactless
- Available on Android and iOS
- Patents in Hong Kong, Taiwan, China, USA, Germany

#### VISITOR MANAGEMENT SYSTEM

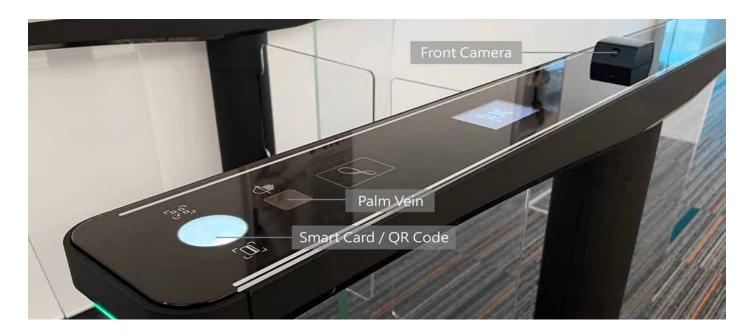


- Non-transferable weblink
- Scramble QR Code as temporary pass for visitors & couriers to access building facilities
- Support integration with ACX Access Control Reader & System and Turnstile & Lift **Destination Control System**

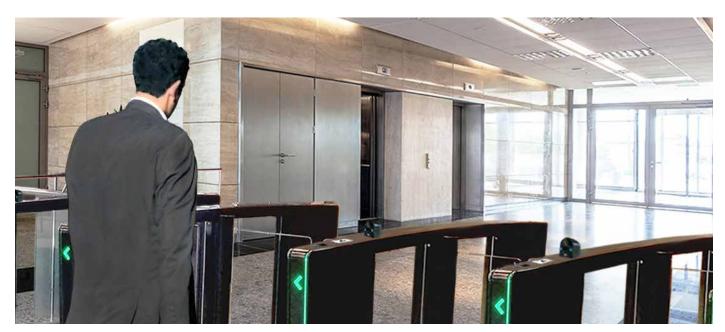


<sup>\*</sup> Integration with turnstile and lift destination control available

#### TURNSTILE & LIFT DESTINATION CONTROL



- Third party integration of ACX Lift Destination Control and Visitor Management System
- Reader supports contactless Smart Card, Mobile Virtual Card (Scramble QR Code, NFC and Bluetooth), Facial Recognition, and Palm Vein Technology
- Upon detecting the user identity, the LCD screen will instantly display the lift ID and user's access status
- Capable of embedding ACX Thermal and Facial Recognition Detectors for temperature screening and face mask detection
- ACX 8980 Turnstile Gateway for providing an interface between field level input, output devices, and ACX lift application server
- Partnership with Otis, Schindler, Thyssenkrupp, and Mitsubishi on the advanced Lift Destination Control System

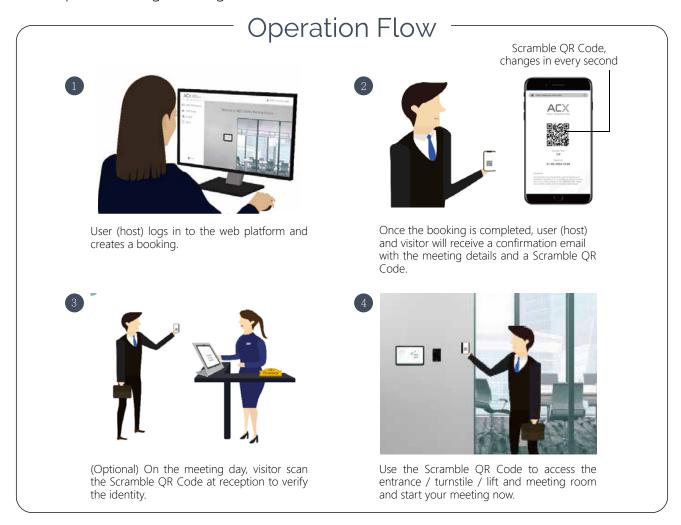


#### **FACILITY BOOKING SYSTEM**



ACX Facility Booking System is meticulously designed to be the simplest and most effortless solution for booking facilities. It integrates seamlessly with ACX Visitor Management System and Facility Access, which is an one-stop platform for users to make room reservations, online registrations, visitor invitations, and visitor management.

A tablet is mounted just outside the venue, displaying the entire day's bookings. Bookings are made via a web platform. Users can check real-time facility availability and view the complete schedule of meetings of the day through the tablet. This prevents any potential interruptions during meetings and ensures a smooth workflow.



#### **SMART MAILBOX SYSTEM**



Unlock Mailbox Door via Scramble QR Code or Bluetooth



Mailbox Notification & Record



2388 Mailbox Lock



13.56 MHz



Bluetooth



Scramble QR Code



Facial Recognition



Palm Vein



Octopus

- Tenants will be notified if mail arrives in real time via mobile application, e-mail, and SMS
- Built-in Lock with 3 sensors for tamper monitoring & mail notification
- Lock set capable for extension of 2 sets of external sensors
- Tenants can check mailbox status via mobile application
- Support emergency opening design
- Access mailbox with ACX reader
- The mailbox lock can be manually overridden



#### **PORTFOLIO**

#### COMMERCIAL BUILDINGS

ACX products and solutions are seen at advanced and innovative centers and commercial buildings, including:



The Henderson

- Over 700 multi-technology all-in-one readers installed
- Access Control System
- Turnstile Access control System
- Lift Destination Control Integration
- Visitor Management System
- Mobile Virtual Card Platform
- Mobile Patrol System
- CCTV integration
- Water leakage system integration
- Interface with the Fire service system
- Interface with the Building Management system
- Integrated with The Henderson's ITEAP mobile apps



Hongkong Land - Central

- 1st turnstile in Hong Kong equipped with multi-tech readers and thermal facial readers
- Turnstile and Lift Control System accessed by Smart Card or Facial Authentication or Mobile Virtual Card (Scramble QR Code)
- Thermal sensors and cameras combined to check whether people are wearing masks and at normal temperature
- Visitor Management System and Self Servicing Kiosk







Hong Kong Science Park

- World 1st Bluetooth & Scramble QR code in a mobile virtual card
- Implemented comprehensive ACX smart building solution
- Over 3,000 pcs multi-technology readers installed (Facial Recognition / Palm Vein / Bluetooth / QR Code / Card)
- Turnstile Access Control Solution
- Lift Destination Control Integration
- Visitor Management System
- Facility Booking System
- Mobile Virtual Card Platform
- Mobile Patrol System



South Island Place in Wong Chuk Hang

 Multi-tech access readers (K Series) for the Building Access System



Manulife Place

- The pioneering location to apply ACX
   Mobile Virtual Card Platform, ACX
   Access Control System, Turnstile & Lift
   Destination Control System
- Door Access Controller
- Alarm Input Monitoring
- High-level Integration with Mitsubishi Lift Destination Control System
- Turnstile for High / Middle / Low zone Access Control
- Visitor Management System



West Kowloon Cultural District Authority

- Multi-tech access readers (K Series) at Headquarters and Xiqu Center
- 30+ Fingerprint readers in Xiqu Centre
- 50+ Palm Vein Recognition readers in M+ Pavilion
- Provided high-security MIFARE DESFire Card for whole district
- Fingerprint and Palm Vein templates in card authentication

#### **PORTFOLIO**

#### **GOVERNMENTAL SECTOR**

Trusted by government agencies, we provide cutting-edge building access control solutions tailored to safeguarding facilities and protecting sensitive information.



Hong Kong Fire Services Department

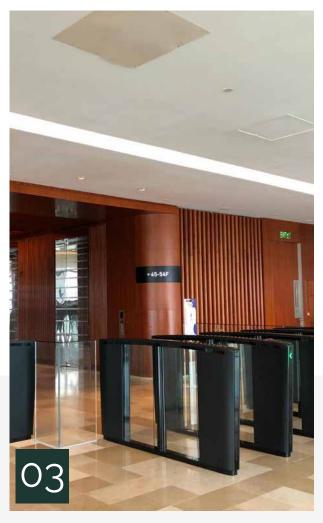
- Facial + Smart Card + QR code + Bluetooth 4-in-1 multi-technology readers for building Access Control System
- Turnstile Solution (Facial Recognition, QR code and card readers embedded)
- Visitor Management System
- Facial Recognition Mobile Device (for recording the entering and exiting of the site)
- Car Park System (to auto-detect the number plates)

# GOVERNMENTAL SECTOR



Office of the Government Chief Information Officer

- Access Control System with X9 readers (5-in-1 multi-technology reader)
- Visitor Management System implantation services
- OGCIO x Robocore Robot guest service



SFC Office relocation to One Island East (OIE) in Quarry Bay

- Over 200 Scramble QR Code and LEGIC Card readers installed
- Visitor Management System
- Access Control System
- Turnstile System Integration
- CCTV Integration
- Intelligent Alarm System

#### **PORTFOLIO**

#### RESIDENTIAL BUILDINGS

**AC**X Smart Mailbox / Locker System and Lock, Access Control System & Reader, Lift Destination Control System, and Visitor Management System have also been implemented in residential buildings, including:





- Over 3,000 Smart Mailboxes installed in The Pavilia Farm
- Visitor Management System
- Access Control System
- Lift Destination Control System
- Smart Mailbox System

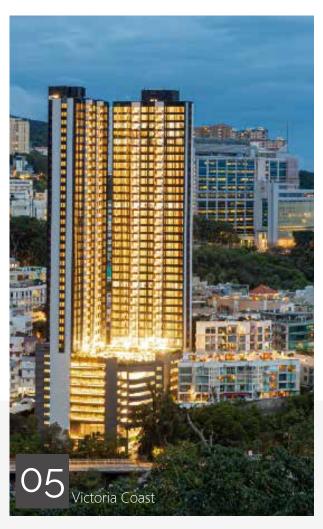






# RESIDENTIAL BUILDINGS





Mount Anderson and Victoria Coast by Chinachem

- Visitor Management System
- Access Control System
- Lift Destination Control System
- Smart Mailbox System

#### **PORTFOLIO**

#### **CASINOS**

Over the years, ACX has been instrumental in helping casinos, which by nature demand top-level security control, to upgrade their door access rights as well as set up readers and staff kiosks.



#### Wynn Macau

 220 pcs PoE HID iCLASS custommade Time Clock (payroll management by recording staff's time & attendance)



#### **MGM**

 10 sets POS reader located in internal staff canteen (for purchasing meals using smart cards)



#### The Venetian

- 80 sets staff kiosk (for checking roster, taking leaves, printing salary slip & forms, etc.)
- 800 sets high security smart card reader upgrade (from HID to ACX reader)
- 400 pcs HID iCLASS Time Clock (ACX F2 reader)
- 500+ pcs door access reader (ACX F3 reader)

#### **PORTFOLIO**

#### SAFE DEPOSIT BOX

By combining multi-tech access readers with Safe Deposit Box Booking System and Lighting Guiding System, our authentication solutions meet rigorous security requirements to add a multi-layered security framework for your valuable assets.



Far East Vault



- ACX multi-tech access reader that supports Card, mobile Scramble QR code, Facial, Palm Vein Recognition
- Door Accessories & resettable call points



Royal England Safe Deposit Box

- ACX 's exemplary IoT Project
- From conceptualization to design to building
- Safe Deposit Box Booking System
- Intelligent lighting guiding system
- Palm Vein on card solutions
- 1417 deposit boxes

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