



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 and verification processes, ensuring streamlined 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 **ACX** establish its presence in Hong Kong and will allow the company to expand its operations into APEC in the next 10 years.

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.



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.

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
- Compatible with Android and iOS

Non-transferrable 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-transferrable technology to prevent counterfeiting



SCRAMBLE
QR CODE PATENTS

DISRUPTIVE TECHNOLOGIES



Scramble QR Code

- 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



Palm Vein Technology

- 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



Facial Recognition Technology

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



Octopus Card Integration

- 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



Multi-Technology Readers



IP Based Controllers



Smart Tools

SOLUTIONS



Visitor Mangement System



Turnstile Access System



Lift Destination Control



Facility Booking System



Mobile Patrol System



Shuttle Bus Access



Smart Mailbox System



Smart Locker System



ACX.90 Platform

X.90 INTEGRATED SYSTEM PLATFORM

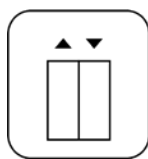


- Compatible with Windows 11, MS SQL 2022 or after
- One database covering multi-systems
- High security scramble data encryption during data exchange from **ACX** panels to PC software
- Multi-threading programming, high speed response
- Multi-language support
- Login user access rights controlled by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

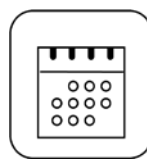
SYSTEM COMPONENTS



Access Control



Lift Destination Control



Time and Attendance



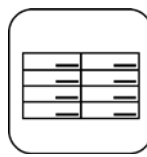
Visitor Management



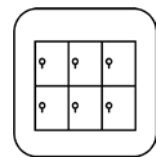
Facility Booking



Electronics Map



Smart Mailbox



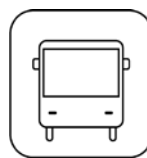
Smart Locker



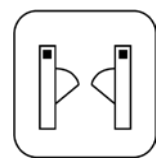
Mobile Patrol



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

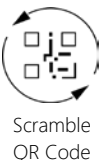


Ultra-High Frequency (860MHz - 960MHz):
Read and write 128bits EPC memory

MOBILE

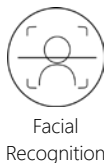


Bluetooth:
2.4GHz Bluetooth 4.0+



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

BIOMETRICS



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

PRODUCTS

ACCESS READERS — X SERIES



X1



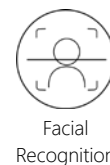
X2



X3



X8



X SERIES

PRODUCTS

ACCESS READERS — X SERIES



X9



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)

X SERIES

PRODUCTS

ACCESS READERS — Q SERIES



Q1



13.56 MHz



Bluetooth



Scramble
QR Code



Facial
Recognition

- Support Smart Card, Scramble QR Code, Bluetooth, Facial Recognition Technology
- Work with **ACX** 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

PRODUCTS

ACCESS READERS — V SERIES



V1



Octopus



Bluetooth



Scramble
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

V SERIES

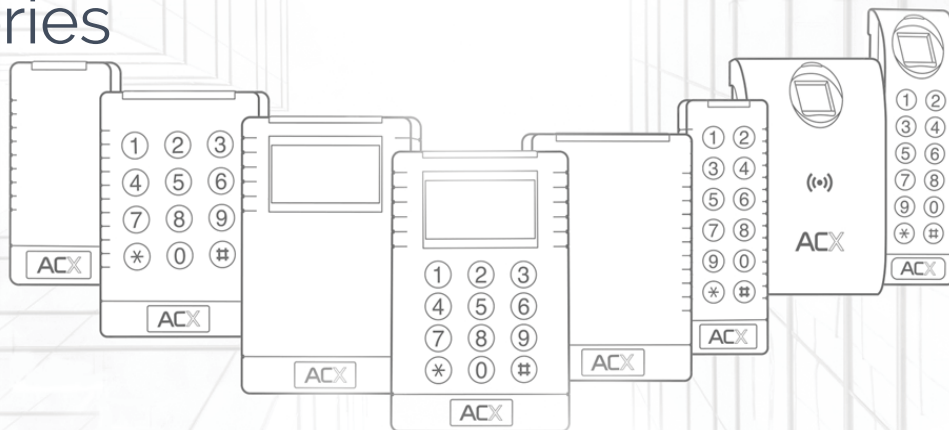
PRODUCTS

ACCESS READERS — K · F · S SERIES

K Series



F Series



S Series



PRODUCTS

THERMAL AND FACIAL RECOGNITION DETECTOR



2098



Temperature



Mask On



Facial
Recognition



Scramble
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 $\pm 0.3^{\circ}\text{C}$
- 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 $\geq 99\%$
- Mask detection accuracy $\geq 99\%$
- Size: 78mm(W) x 72mm(H) x 120mm(D)

THERMAL AND FACIAL
RECOGNITION DETECTOR

PRODUCTS

CONTROLLERS

Door Access Controller:



8900 Network PoE Door Access Panel



8901 Network Single Door Access Panel



8902 Network Two Door Access Panel

Lift Controller:



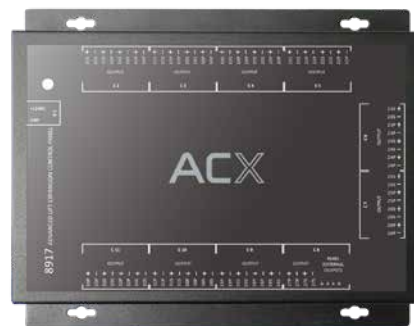
8906 Network Lift Control Panel



8907 Network Lift Control Expansion Panel

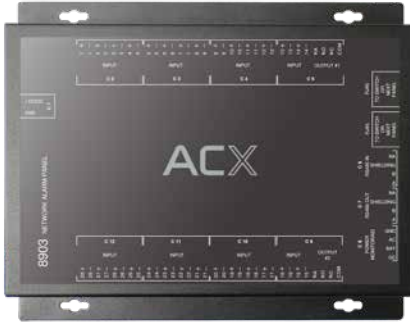


8916 Advanced Network Lift Control Panel



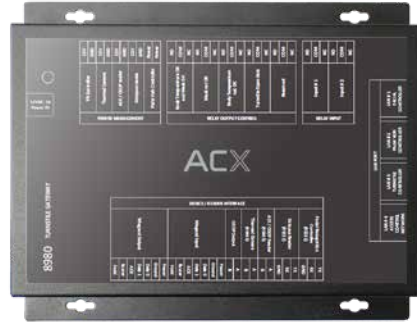
8917 Advanced Network Lift Control Expansion Panel

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

CONTROLLERS

PRODUCTS

SMART TOOLS

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



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)

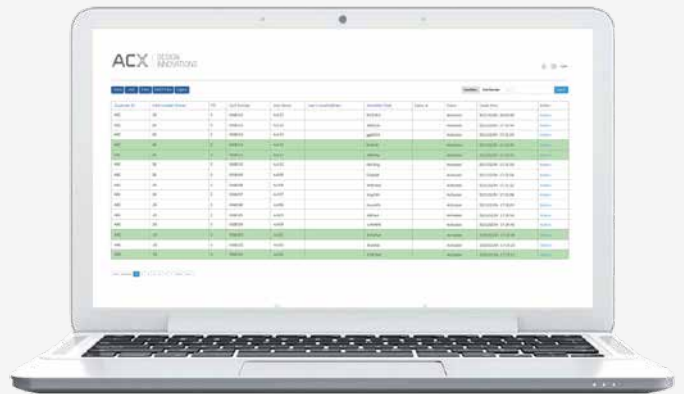
SMART TOOLS

PRODUCTS

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

- 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

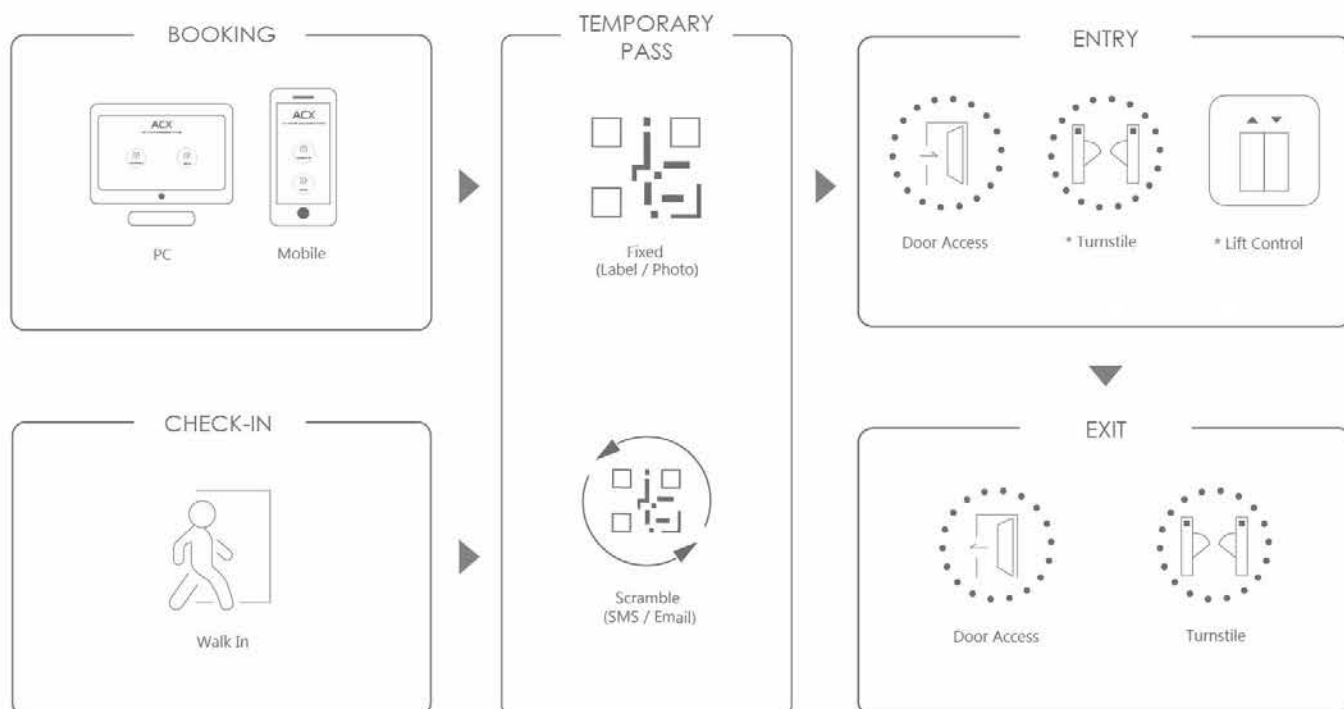


SOLUTIONS

VISITOR MANAGEMENT SYSTEM



- Visitor pre-registration via online web portal
- Visitors receive QR code weblink via email / SMS
- 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



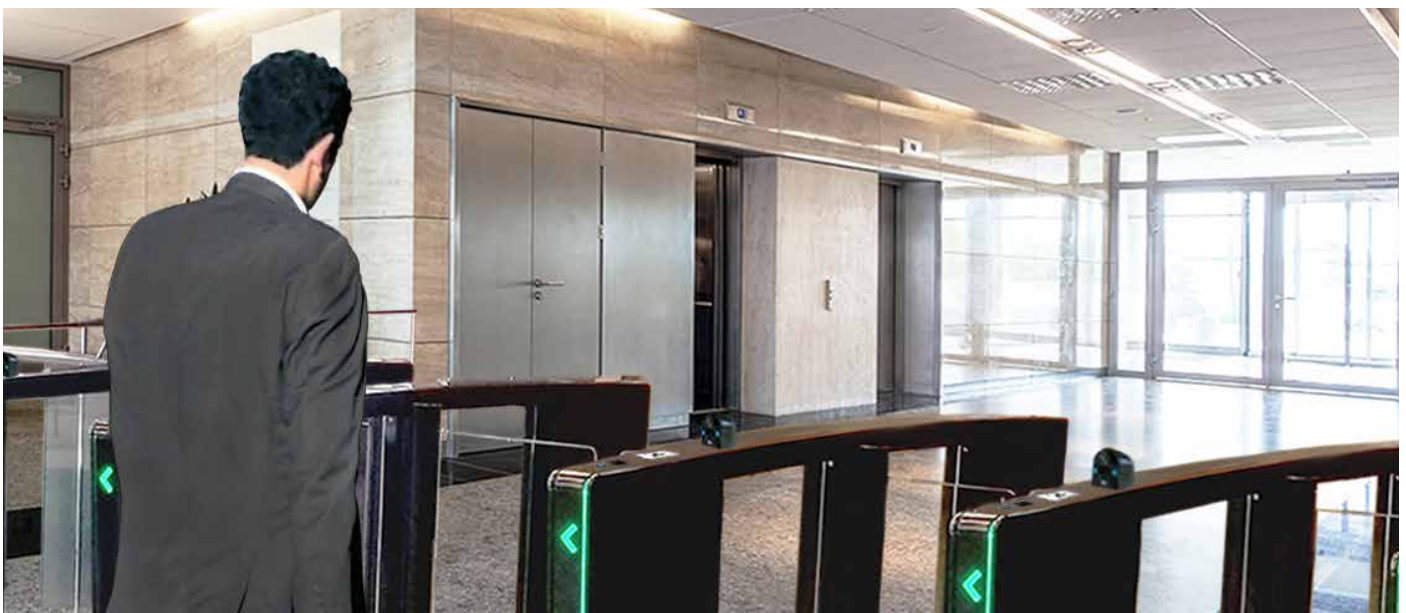
* Integration with turnstile and lift destination control available

SOLUTIONS

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



SOLUTIONS

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.

Operation Flow



1 User (host) logs in to the web platform and creates a booking.



2 Once the booking is completed, user (host) and visitor will receive a confirmation email with the meeting details and a Scramble QR Code.



3 (Optional) On the meeting day, visitor scan the Scramble QR Code at reception to verify the identity.



4 Use the Scramble QR Code to access the entrance / turnstile / lift and meeting room and start your meeting now.

SOLUTIONS

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:



Pak Shek Kok
Hong Kong Science Park



01 Kowloon Tong
InnoCentre

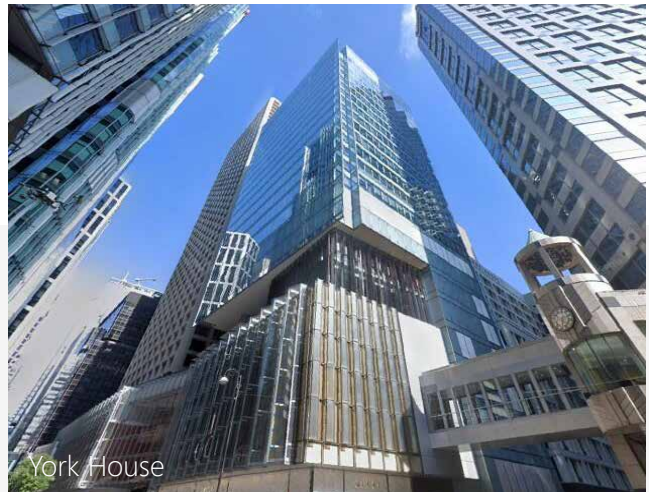


Tseung Kwan O
Data Technology

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

COMMERCIAL BUILDINGS



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

COMMERCIAL BUILDINGS



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

COMMERCIAL BUILDINGS



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

COMMERCIAL BUILDINGS



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

ACX 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:



The Pavilia Farm, Timber House, Atrium House, Artisan Garden by New World Development

- 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 custom-made 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

- Safe Deposit Box Booking System
- **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

MATRIX RESEARCH LIMITED

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ACX

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