

**Multi-technology Access Reader Specification**

**Manufacturer - Matrix Research Limited**

**Product Brand - ACX**

1. Contactless Smart Card smart Reader (RFID Card)
  - a) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime and LEGIC Advent card technology.
  - b) 13.56MHz card read range: 5cm+;
  - c) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - d) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - e) Reader configuration can be updated through the network by ACX proprietary software
  - f) Reader firmware can be upgraded through the network by ACX proprietary software
  - g) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - h) Reader Tamper: Optical sensor
  - i) Reader size shall be no larger than 80mm(W) x 115mm(H) x 20mm(D)
  - j) Waterproof, IP65 rated.

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2. 2-in-1 Multi-technology Smart Card smart Reader (Bluetooth + RFID Card)
- k) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime and LEGIC Advant card technology.
  - l) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - m) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - n) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - o) Reader configuration can be updated through the network by ACX proprietary software
  - p) Reader firmware can be upgraded through the network by ACX proprietary software
  - q) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - r) Reader Tamper: Optical sensor
  - s) Reader size shall be no larger than 80mm(W) x 115mm(H) x 20mm(D)  
Waterproof, IP65 rated

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3. 3-in-1 Multi-technology Smart Card smart Reader (Bluetooth + Keypad + RFID Card)
- a) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - b) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - c) 12 capacitance touch keypads, 0~9,\*,#. The keypad has a backlight in 7 different colors.
  - d) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - e) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - f) Reader configuration can be updated through the network by ACX proprietary software
  - g) Reader firmware can be upgraded through the network by ACX proprietary software
  - h) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - i) Reader Tamper: Optical sensor
  - j) Reader size shall be no larger than 80mm(W) x 110mm(H) x 20mm(D)
  - k) Waterproof, IP65 rated

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4. 3-in-1 Multi-technology Smart Card smart Reader (Bluetooth + Scramble QR Code + RFID Card)
    - a) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
    - b) Supports Bluetooth 5.0, 2.4GHz
    - c) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
    - d) QR code resolution 640 x 480
    - e) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
    - f) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
    - g) Programmable reader buzzer beep sound interval and times for access granted and access denied
    - h) Programmable reader LED color (7 colors) interval and times for access granted and access denied
    - i) Reader configuration can be updated through the network by ACX proprietary software
    - j) Reader firmware can be upgraded through the network by ACX proprietary software
    - k) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
    - l) Reader Tamper: Optical sensor
    - m) Reader size shall be no larger than 80mm(W) x 130mm(H) x 20mm(D)
    - n) Waterproof, IP65 rated

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5. 4-in-1 Multi-technology Smart Card Keypad Reader (Keypad + Bluetooth + Scramble QR Code + RFID Card)
- a) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - b) Supports Bluetooth 5.0, 2.4GHz
  - c) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - d) QR code resolution 640 x 480
  - e) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - f) 12 capacitance touch keypads, 0~9,\*,#. The keypad has a backlight in 7 different colors.
  - g) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - h) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - i) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - j) Reader configuration can be updated through the network by ACX proprietary software
  - k) Reader firmware can be upgraded through the network by ACX proprietary software
  - l) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - m) Reader Tamper: Optical sensor
  - n) Reader size shall be no larger than 80mm(W) x 130mm(H) x 20mm(D)
  - o) Waterproof IP65 rated.

6. 4-in-1 Multi-technology Palm Vein Smart Card Reader (Palm Vein + Bluetooth + Scramble QR Code + RFID Card)
  - a) Palm Vein recognition technology should be provided by the Fujitsu PalmSecure-F Pro sensor
  - b) Palm Vein Sensor supports binocular infrared live detection
  - c) Palm Vein recognition can be completed for 2,000 palm vein users in one second. Each user can register two palm vein templates
  - d) FAR is 0.00001%, Palm Vein detective range of the Palm Vein Sensor is from 30mm to 70mm
  - e) Supports 5,000 local personnel
  - f) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - g) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - h) Supports Bluetooth 5.0, 2.4GHz
  - i) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - j) QR code resolution 640 x 480
  - k) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - l) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - m) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - n) Reader configuration can be updated through the network by ACX proprietary software
  - o) Reader firmware can be upgraded through the network by ACX proprietary software
  - p) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - q) Reader Tamper: Optical sensor
  - r) Reader size shall be no larger than 80mm(W) x 130mm(H) x 20mm(D)
  - s) Waterproof IP55 rated

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7. 4-in-1 Multi-technology Facial Recognition Smart Card Reader (Facial Recognition + Bluetooth + Scramble QR Code + RFID Card)
- a) Facial Recognition Algorithm by Face++ / SenseTime technology
  - b) Facial detection supports binocular infrared live detection
  - c) Face recognition can be completed in 300 milliseconds
  - d) The recognition accuracy rate is higher than 99%, and 0.5m-1.5m recognition distance is supported
  - e) Supports 20,000 local personnel
  - f) Real-time detection and tracking of human faces; accurate detection can be carried out in situations such as side faces, half occlusion, and blur
  - g) Minimum 0.5 lux recognition
  - h) Effective defense against non-living attacks such as 3D printing, electronic screens, video, pictures, masks, hoods, etc.
  - i) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime; and LEGIC Advant card technology.
  - j) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - k) Supports Bluetooth 5.0, 2.4GHz
  - l) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - m) QR code resolution 640 x 480
  - n) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - o) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - p) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - q) Reader configuration can be updated through the network by ACX proprietary software
  - r) Reader firmware can be upgraded through the network by ACX proprietary software
  - s) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - t) Reader Tamper: Optical sensor
  - u) Reader size shall be no larger than 80mm(W) x 130mm(H) x 20mm(D)

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8. 4-in-1 Multi-technology Facial Recognition Smart Card LCD Reader (Facial Recognition + Bluetooth + Scramble QR Code + RFID Card)
- a) Facial Recognition Algorithm by Face++ / SenseTime technology
  - b) Reader cover material made of Aluminum alloy
  - c) Reader LCD 5.5"
  - d) Facial detection supports binocular infrared live detection
  - e) Face recognition can be completed in 300 milliseconds
  - f) The recognition accuracy rate is higher than 99%, and 0.5m-1.5m recognition distance is supported
  - g) Supports 20,000 local personnel
  - h) Real-time detection and tracking of human faces; accurate detection can be carried out in situations such as side faces, half occlusion, and blur
  - i) Minimum 0.5 lux recognition
  - j) Effective defense against non-living attacks such as 3D printing, electronic screens, video, pictures, masks, hoods, etc.
  - k) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - l) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - m) Supports Bluetooth 5.0, 2.4GHz
  - n) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - o) QR code resolution 640 x 480
  - p) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - q) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - r) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - s) Reader configuration can be updated through the network by ACX proprietary software
  - t) Reader firmware can be upgraded through the network by ACX proprietary software
  - u) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - v) Reader Tamper: Optical sensor
  - w) Reader size shall be no larger than 96mm(W) x 240mm(H) x 22mm(D)



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9. 4-in-1 Multi-technology Octopus smart lock reader (Octopus + Bluetooth + Scramble QR Code)
- a) Support HK Octopus Card, Octopus mobile apps, Octopus watch
  - b) Supports Octopus, Mobile Virtual Card by Bluetooth 4.0+ and Scramble QR Code
  - c) Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - d) Supports Bluetooth 5.0, 2.4GHz
  - e) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - f) QR code resolution 640 x 480
  - g) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - h) The reader shall have the Octopus Holding Limited Type Approval Certificate
  - i) Octopus ISO card read range: 7cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - j) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - k) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - l) Reader configuration can be updated through the network by ACX proprietary software
  - m) Reader firmware can be upgraded through the network by ACX proprietary software
  - n) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - o) Reader size shall be no larger than 94mm(W) x 196mm(H) x 55mm(D)
  - p) Flush mount design with only 6mm extruded from the wall.

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10. 5-in-1 Multi-technology Reader (Facial Recognition + Palm Vein + Bluetooth + Scramble QR Code + RFID Card)
- a) Facial Recognition Algorithm by Face++ / SenseTime technology
  - b) Facial detection supports binocular infrared live detection.
  - c) Face recognition can be completed in 300 milliseconds.
  - d) The recognition accuracy rate is higher than 99% and 0.5m-1.5m recognition distance is supported.
  - e) Supports 20,000 local personnel
  - f) Real-time detection and tracking of human faces; accurate detection can be carried out in situations such as side faces, half occlusion, and blur
  - g) Minimum 0.5 lux recognition
  - h) Effective defense against non-living attacks such as 3D printing, electronic screens, video, pictures, masks, hoods, etc.
  - i) Palm Vein recognition technology should be provided by Fujitsu PalmSecure-F Pro sensor
  - j) Palm Vein Sensor supports binocular infrared live detection.
  - k) Palm Vein recognition can be completed for 2,000 palm vein users in one second. Each user can register 2 palm vein templates.
  - l) FAR is 0.00001%, Palm Vein detective range of the Palm Vein Sensor from 30mm to 70mm
  - m) Supports 5,000 local personnel.
  - n) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - o) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - p) Supports Bluetooth 5.0, 2.4GHz
  - q) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - r) QR code resolution 640 x 480
  - s) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - t) Programmable reader buzzer beep sound interval and times for access granted and denied.
  - u) programmable reader LED color (7 colors) interval and times for access granted and access denied.
  - v) Reader configuration can be updated through the network by ACX proprietary software.
  - w) Reader firmware can be upgraded through the network by ACX proprietary software.
  - x) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - y) Reader Tamper: Optical sensor
  - z) The reader is flush-mount design. Reader size shall be no larger than 90mm(W) x 184mm(H) x 30mm(D), 3mm thickness on the wall.

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11. Flush-mounted 3-in-1 Multi-technology Smart Card smart Reader (Bluetooth + Scramble QR Code + RFID Card)
- a) This flush-mounted reader can be directly mounted on the electric junction box.
  - b) Reader size is 86mm(W) x 86mm(H) x 5mm(D) with reader cover plate.
  - c) Supports 13.56MHz NXP Mifare Class, Mifare Plus, Mifare DESFire, LEGIC Prime, and LEGIC Advant card technology.
  - d) Supports Bluetooth 5.0, 2.4GHz
  - e) QR code camera minimum resolution is 5 mil (1mil = 0.0254mm, 0.01 inch)
  - f) QR code resolution 640 x 480
  - g) QR code camera scanning range,  $\pm 60^\circ$  for left & right,  $\pm 40^\circ$  for front and back,  $360^\circ$  rotation.
  - h) 13.56MHz card read range: 5cm+; Bluetooth read range: 0.5m to 10m; QR Code read range: 4cm to 22cm
  - i) Programmable reader buzzer beep sound interval and times for access granted and access denied
  - j) Programmable reader LED color (7 colors) interval and times for access granted and access denied
  - k) Reader configuration can be updated through the network by ACX proprietary software
  - l) Reader firmware can be upgraded through the network by ACX proprietary software
  - m) Reader outputs Wiegand, OSDP V2, and ACX proprietary scramble encryption RS485 format
  - n) Reader Tamper: Optical sensor
  - o) Waterproof, IP55 rated