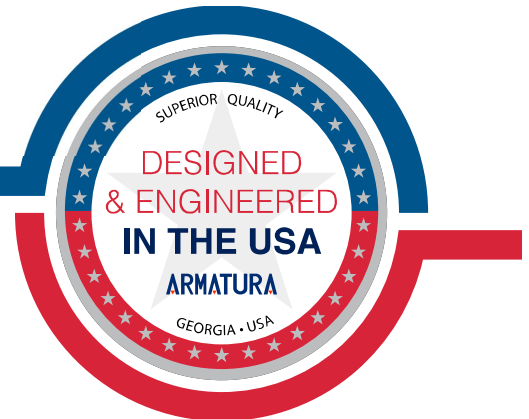


## Architecture and Engineering Specifications

### EP30CF Multi-tech Fingerprint Reader



NFC

Bluetooth™



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Date: 2 May 2023

Version Number: Version 1.0

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## SECTION 1

### 1. Purpose

The purpose of this architecture and engineering specifications (A&E) document is to provide guidance for the design, implementation, and installation of the Explorer Series, EP30CF multi-tech fingerprint reader for access control security applications and management.

### 2. Goals And Objectives

The EP30CF multi-tech fingerprint reader A&E specification aims to achieve the following goals and objectives:

- Provide a highly secure and reliable multi-tech fingerprint reader with advanced authentication and access control capabilities.
- Ensure scalability and flexibility to accommodate varying user and system requirements.
- Meet or exceed relevant industry standards and regulations.
- Provide a clear and detailed specification for the design, supply, installation, and commissioning of the EP30CF multi-tech fingerprint reader.

### 3. Key Features and Requirements

The EP30CF multi-tech fingerprint reader shall have the following key features and requirements:

- Adopts advanced fingerprint scanning technology, with fingerprint algorithm AMTFingerprint v10.0, supports the whole system to cascade up to millions of fingerprint templates, and the fingerprint is irreversible to fingerprint photos under any possible measures, and the encryption standard of the algorithm is as high as AES128 standard.
- Mobile credential capability for access control on both iOS and Android systems. With the Armatura ID mobile app that supports NFC and Bluetooth, allowing users to easily open doors by presenting your smartphone to the reader, extending mobile access functions to almost all smartphone users.

- Supports Open Supervised Device Protocol (OSDP v2.2) via RS-485 for secure communication between the control panel and the EP30CF reader.
- Utilizes certified crypto chips with EAL5+ certification for advanced data protection and secure data storage.
- AES-128 end-to-end encryption for secure communication between the control panel and the EP30CF reader.
- Supports multi-tech reading including 125kHz, 13.56MHz and 2.4GHz frequency credentials.
- Supports over 30 card types, covering most of the common card formats in the market.
- Compact mullion mount design with optional gang box (Single gang, European gang and Asian gang box).
- IP65 Water & Dustproof protection levels enable operation under any installation environment.
- User management and access control capabilities.
- The system shall comply with GDPR privacy standards.

#### 4. Design And Implementation Constraints

- The design and implementation of the EP30CF multi-tech fingerprint reader shall adhere to the following constraints:
- The design shall be scalable and flexible to accommodate varying user and system requirements.
- The implementation shall be done by trained installers who have been certified by the manufacturer.
- The implementation shall comply with relevant standards and regulations.
- The implementation shall ensure high-level cybersecurity to protect against unauthorized access or data breaches.

## 5. Existing Standards and Regulations

The EP30CF multi-tech fingerprint reader shall comply with the following standards and regulations:

- OSDP V2.2 Standards
- Bluetooth 5.2 Standards
- FCC Standards
- CE Standards
- RoHS3.0 Standards
- WEEE Standards

## 6. Submittals

The following submittals shall be provided by the manufacturer.

- Product data sheets
- Installation and operation manuals
- Technical support contact information
- Warranty information

## 7. Qualifications

The manufacturer shall have the following qualifications:

- ISO 9001 certification, ISO27701, ISO27001, ISO9001, ISO14001.
- Minimum of 5 years' experience in producing access control equipment.

## 8. Warranty

The manufacturer shall provide a limited 36-month warranty for the EP30CF multi-tech fingerprint reader to be free of defects in material and workmanship.

## SECTION 2

### Key Features and Requirements

#### Key Features

1. Multi-tech RFID & Mobile Credential
  - Supports over 30+ RFID card types and dual RFID frequencies (125kHz and 13.56MHz). Also, supports both mobile NFC and Bluetooth (Low Energy).
2. Support Multi-card Types
  - The standard package supports over 30 RFID card types, with various optional RFID modules available to cover some extra advanced secured RFID protocols. This provides high flexibility for multi-card types and mobile credential situations, satisfying most end-user requests.
3. OSDP Multi-tech Biometric Reader
  - One of the first OSDP multi-tech biometric readers in the market. Fully complied with the Open Surprised Device Protocol (OSDP) version 2.2 with secured communication encrypted by AES128 standard.
4. Advanced fingerprint scanning technology is highly advanced and capable of supporting millions of fingerprint templates. The system ensures that the fingerprint data is irreversible and cannot be converted back into a fingerprint image.
5. Adopts the AMTFingerprint v10.0 fingerprint algorithm
6. Anti-SPA/ DPA/ EMA/ DEMA Attack

7. Provides two modes of mobile credential through the Armatura's ID mobile App across the iOS and Android systems on smartphones.  
  
The card mode presents your smartphone to the reader like an access card. The remote mode conducts the verification on the reader by clicking a button in the Armatura ID App.
8. Operating Frequency: 125kHz, 13.56MHz: ISO14443 types A & B, ISO15693, 2.4GHz Bluetooth®.
9. For communications and panel connection, it offers OSDP (v2.2) via RS-485. for communications and panel connection.
10. 13.56MHz & 125kHz multi-tech cards reading distance is up to 2.3" or 60mm (depending on environment and transponder). Up to 393.7" or 10m with Bluetooth smartphone (configurable distances on each reader).
11. Bluetooth Smartphone reading distance is up to 10m (configurable on each reader).
12. Adopts AES128 for data protection between reader & controller communication.
13. Ensure secured data storage with EAL6+ and a certified crypto chip.
14. Provides RGB LEDs, the visual indicators and it is configurable by "Armatura Connect" mobile App.
15. Suits for any flat surface mounting.
16. Power supply ranges from 9 VDC to 24 VDC.
17. The standard dimensions is 2.57" in length, 5.26" in height and 1.54" in depth (65.2 x 133.7 x 39.1 mm).
18. The EP30CF multi-tech fingerprint reader can fully operate at -20°C to 55°C (-4°F - 131°F).

## Technical Specifications

### Dimensions



### Specification

Internal Number	EP30CF
Operating Frequency / Standards	125 kHz 13.56 MHz: ISO14443A types A & B, ISO15693 2.4 GHz Bluetooth®
Functions	RFID, Bluetooth, Fingerprint
Communications & Panel Connection	OSDP (v2.2) via RS485
RFID Reading Distance	13.56MHz & 125kHz: Up to 2.3"/60 mm (depending on environment and transponder) Up to 393.7"/10m with a Bluetooth Smartphone (configurable distances on each reader)
Data Protection	AES128 (Secured Communication between Reader & Controller) Secure Data Storage in EAL5+ Certified Crypto Chip
Fingerprint Algorithm	AMTFingerprint v10.0
Visual Indicator	RGB LEDs (Configurable By 'Armatura Connect' Mobile APP)
Audio Indicator	Internal buzzer with adjustable intensity (Configurable By 'Armatura Connect' Mobile APP)
Power Requirement / Power Supply	9 VDC to 24 VDC
Operating Temperature	-4°F - 131°F / -20°C to 55°C
Dimensions(L*H*D)	2.57" L x 5.26" H x 1.54" D (65.2 x 133.7 x 39.1mm)
Tamper Switch	Magnetic tamper detection system
Certifications	CE, FCC, RoHs3.0, WEEE
Mounting	Suited for any flat surface mounting
Protection / Resistance	Weather & Dust Proof Protection Rating compliant with IP65
UV Stability	
Housing Material	



## Armatura Card Modules Supporting List

ARMATURA		ARMATURA RFID Card Module Supporting List										ArmaSec-12082022
Frequency	Classification	Card Module Abbreviation	[DF]	[SFMH]	[NO]	[NP]	[NI]	[NOL]	[NPL]	[NOH]	[NIH]	
		Compatible Readers	EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30CF	EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30CF	EP10C	EP10C/ EP20CQ/ EP20CKQ	EP10C/ EP20CQ/ EP20CKQ	EP10C	EP10C/ EP20CQ/ EP20CKQ	EP10C	EP10C/ EP20CQ/ EP20CKQ	
13.56MHz	ISO14443A	LEGIC Advant		✓	✓(1)	✓(1)	✓(1)			✓(1)	✓(1)	
		MIFARE Classic, Mini S50, S70, S50	✓(4)	✓	✓	✓	✓			✓	✓	
		MIFARE Classic EV1	✓(4)	✓(2)	✓(2)	✓(2)	✓(2)			✓(2)	✓(2)	
		MIFARE DESFire Light		✓(11)	✓(11)	✓(11)	✓(11)			✓(11)	✓(11)	
		MIFARE DESFire EV1	✓(4)	✓	✓	✓	✓			✓	✓	
		MIFARE DESFire EV2		✓(11)	✓(11)	✓(11)	✓(11)			✓(11)	✓(11)	
		MIFARE Plus S, X		✓	✓	✓	✓			✓	✓	
		MIFARE Pro X			✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		MIFARE Smart MX		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		MIFARE Ultralight		✓	✓	✓	✓			✓	✓	
		MIFARE Ultralight C		✓	✓	✓	✓			✓	✓	
		MIFARE Ultralight EV1		✓(2)	✓(2)	✓(2)	✓(2)			✓(2)	✓(2)	
		NTAG2xx		✓	✓	✓	✓			✓	✓	
		PayPass		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
	ISO14443B	SLE44R35		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		SLE66Rxx (my-d move)		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		Topaz			✓	✓	✓			✓	✓	
		HID iCLASS SEOS			✓	✓	✓(20)			✓	✓(20)	
		NFC		✓	✓	✓	✓			✓	✓	
		Calypso		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		Calypso Innovatron protocol		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		CEPAS		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		HID iCLASS		✓	✓(1)	✓(1)	✓(10)			✓(1)	✓(10)	
		CTS		✓	✓	✓	✓			✓	✓(10)	
	ISO18092/ ECMA-340	Moneo		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(10)	
		Pico Pass		✓(4)	✓(4)	✓(4)	✓(4)			✓(4)	✓(4)	
		SRI4K, SRI4K4		✓	✓	✓	✓			✓	✓	
		SRI512, SRT512		✓	✓	✓	✓			✓	✓	
		Sony FelCa		✓(5)	✓(5)	✓(5)	✓(5)			✓(5)	✓(5)	
	ISO15693	EM4x33		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		EM4x35		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		HID iCLASS		✓	✓(1)	✓(1)	✓(10)			✓(1)	✓(10)	
		HID iCLASS SE/ SR/ Elite		✓	✓(1)	✓(1)	✓(10)			✓(1)	✓(10)	
		iCODE SLI		✓	✓	✓	✓			✓	✓(10)	
		LEGIC Advant		✓(1)	✓(1)	✓(1)	✓(1)			✓(1)	✓(1)	
		M24LR16/E4			✓	✓	✓			✓	✓	
		MB89R118/119			MT2, MT3, Nano, Palon, Wall, Panel	MT2, MT3, Nano, Palon, Wall, Panel	MT2, MT3, Nano, Palon, Wall, Panel			MT2, MT3, Nano, Palon, Wall, Panel	MT2, MT3, Nano, Palon, Wall, Panel	
		SRF55Vxx (my-d vicinity)		✓(3)	✓(3)	✓(3)	✓(3)			✓(3)	✓(3)	
		Tag-it		✓	✓	✓	✓			✓	✓	
		Pico Pass			✓(4)	✓(4)	✓(4)			✓(4)	✓(4)	
		LEGIC Prime		✓								
		CPU Card										

ARMATURA

ARMATURA RFID Card Module Supporting List

Frequency	Classification	Card Module Abbreviation	[DF]	[SFMH]	[NO]	[NP]	[NI]	[NOL]	[NPL]	[NOH]	[NIH]	
		Compatible Readers	EP10C/ EP20C/ EP20CQ/ EP30CF	EP10C/ EP20C/ EP20CQ/ EP30CF	EP10C	EP10C/ EP20CQ/ EP20CKQ	EP10C/ EP20CQ/ EP20CKQ	EP10C	EP10C/ EP20CQ/ EP20CKQ	EP10C	EP10C/ EP20CQ/ EP20CKQ	
125kHz	Availability	AWID			✓	✓	✓	✓	✓			
		Cardax			✓	✓	✓	✓	✓			
		CASI-RUSCO			✓	✓	✓	✓	✓			
		CoTag										
		Dassler			✓(8)	✓(8)	✓(8)	✓(8)	✓(8)			
		EM4100, 4102, 4200	✓		✓(7)	✓(7)	✓(7)	✓(7)	✓(7)			
		EM4050, 4150, 4450, 4550			✓	✓	✓	✓	✓			
		EM4305			✓(14)	✓(14)	✓(14)	✓(14)	✓(14)			
		FDX-B, EM4105			✓(15)	✓(15)	✓(15)	✓(15)	✓(15)			
		Ultra Prox			✓(15)	✓(15)	✓(15)	✓(15)	✓(15)			
		G-Prox				✓(8)	✓(8)		✓(8)			
		HID DuoProx II (1336)				✓	✓		✓			
		HID ISO Prox II (1386)				✓	✓		✓			
		HID Micro Prox II (1391)					✓	✓		✓		
		HID Prox III (1346)					✓	✓		✓		
		HID Prox					✓	✓		✓		
		HID Prox II (1326)					✓	✓		✓		
		HITAG 1, 2, S			✓(9)	✓(9)	✓(9)	✓(9)	✓(9)	✓(9)		
		ICT			✓(8)	✓(8)	✓(8)	✓(8)	✓(8)	✓(8)		
		IDTECK				✓	✓	✓	✓	✓		
		Indala										
		isProx										
		ISONAS				✓	✓	✓	✓	✓		
		Keri				✓	✓	✓	✓	✓		
		Miro				✓	✓	✓	✓	✓		
		Nedap				✓(8)	✓(8)	✓(8)	✓(8)	✓(8)		
		Nexwatch					✓			✓		
		PAC				✓(8)	✓(8)	✓(8)	✓(8)	✓(8)		
		Pyramid				✓	✓	✓	✓	✓		
		QS				✓	✓	✓	✓	✓		
		T5557, T5567, T5577				✓	✓	✓	✓	✓		
		TITAN (EM4050)				✓	✓	✓	✓	✓		
		UNIQUE				✓	✓	✓	✓	✓		
		ZODIAC				✓	✓	✓	✓	✓		
			Globally Available		✓				✓		✓	
			Globally Available						✓		✓	
		Except for U.S., E.U., Japan, Australia, Canada, U.K., Albania, Iceland, Liechtenstein, Monaco, North Macedonia, Norway, San Marino, Serbia, Switzerland, Turkey, and the United Kingdom	✓		✓	✓	✓					
	Availability		✓		✓	✓	✓					
<div>1) UID only</div> <div>2) Read/write enhanced security features on request</div> <div>3) Read/write in direct chip command mode</div> <div>4) UID only, read/write on request</div> <div>5) UID + read/write public area</div> <div>6) Hash value only</div> <div>7) Only emulation of 4100, 4102</div> <div>8) On request</div> <div>9) Without encryption</div> <div>10) UID+PAC (CSN &amp; Facility Code), read/write on request</div> <div>11) In preparation</div> <div>13) EV2/EV3 supported as part of the EV1 upward compatibility</div> <div>14) From FW V4.05</div> <div>20) PAC (CSN &amp; Facility Code), read/write on request</div>												

## Maintenance and Support

The EP30CF multi-tech fingerprint reader shall be supported by a comprehensive support program, which shall include the following:

- Regular software updates and security patches.
- Technical support via phone and email.
- Onsite repair services as needed.
- Spare parts availability.
- Training for system administrators and end-users.

## Documentation

The supplier shall provide the following documentation for the EP30CF multi-tech fingerprint reader:

- User manual
- Installation guide
- Technical specifications
- Software release notes
- Warranty terms and conditions
- Support program details

## Warranty and Support

The EP30CF multi-tech fingerprint reader shall be covered by a minimum of 36-month manufacturer's warranty that covers defects in materials and workmanship. The manufacturer shall provide remote technical support and assistance to the installer and end-user during the installation and operation of the controller.

## Training and Documentation

The manufacturer shall provide the following training and documentation for the EP30CF multi-tech fingerprint reader:

- User manuals and technical documentation for installation, configuration, and operation of the controller.
- Online training courses and videos for system administrators and operators.
- On-site or remote training sessions for system integrators and installers.
- Technical support and assistance for system integrators, installers, and end-users.

\*Note Certifications may vary by region and country. Please consult the manufacturer for specific certifications applicable to your location.