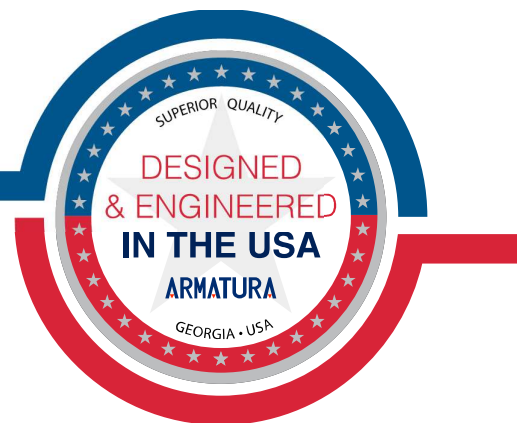# ARMATURA

Architecture & Engineering Specifications

EP10 Series All Weather Outdoor Multi-Tech Smart Reader

SUPERIOR QUALITY
DESIGNED & ENGINEERED
IN THE USA
ARMATURA
GEORGIA • USA

Bluetooth™ **NFC** **OSDP** **IP68** **IK10**

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Section 1

1. Purpose

This architecture and engineering specifications document (A&E) outlines the minimum requirements for the design, supply, installation, and commissioning of the EP10C multi-tech smart reader.

2. Goals and Objectives

This A&E specification aims to achieve the following goals and objectives:

- Provide a highly secure and reliable multi-tech smart 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 EP10C multi-tech smart reader.

3. Key Features and Requirements

The EP10C multi-tech smart reader shall have the following key features and requirements:

- Mobile credential capability for access control on both iOS and Android platforms. 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 Power (OSDP) for secure communication between the control panel and reader.
- Utilizes certified crypto chips with EAL6+ certification for advanced data protection.
- AES-128 end-to-end encryption for secure communication between the control panel and reader.
- Supports multi-tech reading including 125kHz,13.56MHz and 2.4GHz Bluetooth frequency credentials.
- Supports over 100 card types, covering most of the common card formats in the market.
- Compact mullion mount design with optional gang box.
- Compliant with FCC, CE, and UL294 standards.
- Housing material made of Polycarbonate, and it is strictly UL94-V0 compliant.

- IK10 Vandal-proof and IP68 waterproof & 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 EP10 C multi-tech smart 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 EP10 C multi-tech smart reader shall comply with the following standards and regulations:
- OSDP v2.2 Standards
- Bluetooth 5.2 Standards
- FCC Standards
- CE Standards
- WEEE Standards
- UL294 Standards
- AES-128 end-to-end secured communication channel

6. Submittals

The following submittals shall be provided by the manufacturer.

- Product data sheets

- Installation manuals

- Operation manuals

- Test reports

7. Qualifications

The manufacturer shall have the following qualifications:

- ISO 9001, ISO27001, ISO27701, ISO27017, CMMI5 certification.

- Minimum of 5 years' experience in producing access control equipment

8. Warranty

The manufacturer shall provide a limited (36) month warranty for the product 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 100 RFID card types and both mobile NFC and Bluetooth (Low Energy).

2. Support Multi-card Types
   - The standard package supports over 100 RFID card types, with optional modules available to cover an additional over 100 secured RFID protocols. This provides high flexibility for multi-card types and mobile credential situations, satisfying most end-user requests.

3. IP68 Waterproof and Dustproof Protection Level.

4. IK10 Physical & Environmental Protection.

5. Anti-SPA/ DPA/ EMA/ DEMA Attack.

6. Housing Material Meets UL 94V-0 Standard.

7. Provides two modes of mobile credential through the Armatura ID mobile App across the iOS and Android platforms 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 has Wiegand and adopts OSDP (v2.2) via RS-485 (up to 128bits SCP Secure Communication).

10. 13.56MHz & 125kHz multi-tech cards reading distance is up to 60mm (depending on environment and transponder).

11. Bluetooth Smartphone reading distance is up to 10m (configurable on each reader).

12. Adopts AES128 for data protection between reader & controller communication.

13. Provides RGB LED visual indicators and it is configurable by 'Armatura Connect' mobile App.

14. EP10C series is compatible with the "Armatura Connect" mobile App for both iOS and Android systems. This App which allows the installer to easily connect their smartphones to the EP10C series using Bluetooth communication. They can then configure the reader by adjusting settings such as card types, RFID reading distance, Bluetooth communication distances, and enabling or disabling features using their phone or tablet.

15. A compact mullion-mount design which suits most architectural and interior designs. Provides optional gang box (Asian, European or single-gang box) to cover all installation environments.

16. A tamper switch with magnetic tamper detection system.

17. Power supply at 9 VDC to 24 VDC.

18. The standard cover is 1.89" W x 4.52" H x 0.97" D (48 x 114.8 x 24.7mm) and the gang box cover is 3.00" W x 4.84" H x 0.97" D (76.2 x 123.0 x 24.7 mm).

19. Adopts Polycarbonate UL94-V0 for the housing material.

20. The UV stability is nil, as there is a structural degradation for the life of the reader in 3 years.

21. Fully operate in extreme weather, operate temperature at -30°C to 70°C (-22°F - 158°F).

Maintenance and Support

The EP10C multi-tech smart 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.

- Spare parts availability.

- Training for system administrators and end-users.

Documentation

The supplier shall provide the following documentation for the EP10C multi-tech smart reader:

- User manual

- Installation guide

- Technical specifications

- Software release notes

- Warranty terms and conditions

Technical Specifications

Specifications	
Internal Number	EP10C
Operating Frequency / Standards	125 kHz 13.56 MHz: ISO14443 types A & B, ISO15693 2.4 GHz Bluetooth
Functions	RFID and Bluetooth
Communications & Panel Connection	Wiegand OSDP (v2.2) via RS-485 (Up to 128bits SCP Secure Communication)
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 EAL6+ Certified Crypto Chip
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	-22°F - 158°F /-30°C to 70°C
Dimensions	Standard Cover: 1.89" W x 4.52" H x 0.97" D (48 x 114.8 x 24.7mm) Gangbox Cover: 3.00" W x 4.84" H x 0.97" D (76.2 x 123.0 x 24.7 mm)
Tamper Switch	Magnetic tamper detection system
Certifications	CE, FCC, RoHs3.0, WEEE，UL294
Mounting	Suited for mullion-mount door installations or any flat surface mounting Optional Asian / European / single-gang-box back-box spacing
Protection / Resistance	Weather & Dust Proof Protection Rating compliant with IP68 Reinforced Vandal-proof Structure IK10 certified
UV Stability	Nil structural degradation for the life of the reader in 3 years
Housing Material	Polycarbonate UL94-V0 & UL746C (F1)
Remarks： **Standard version provides "Read only" function. Customization is required for "Read & Write" function. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)	

Armatura Card Modules Supporting List

Frequency	Classification	Card Module Abbreviation / Compatible Readers	[DF] EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30 Series	[SFMH] EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30 Series	[NO] EP10C	[NP] EP10C/ EP20CQ/ EP20CKQ	[NI] EP10C/ EP20CQ/ EP20CKQ	[NOL] EP10C	[NPL] EP10C	[NOH] EP10C	[NIH] EP10C
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	√4)	√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)	√2)
		NFC (NTAG2xx)	√		√	√	√			√	√
		PayPass		√3)	√3)	√3)	√3)			√3)	√3)
		SLE44R35		√3)	√3)	√3)	√3)			√3)	√3)
		SLE66Rxx (my-d move)		√3)	√3)	√3)	√3)			√3)	√3)
		Topaz		√	√	√				√	√
		HID iCLASS SEOS					√20)				√20)
		NFC(HCE & NTAG2xx)	√	√	√	√	√			√	√
	ISO14443B	Calypso	√3)	√3)	√3)	√3)	√3)			√3)	√3)
		Calypso Innovatron protocol	√3)	√3)	√3)	√3)	√3)			√3)	√3)
		CEPAS	√3)	√3)	√3)	√3)	√3)			√3)	√3)
		HID iCLASS	√	√1)	√1)	√1)	√10)			√1)	√10)
		CTS	√	√	√	√	√			√	√10)
		Moneo	√3)	√3)	√3)	√3)	√3)			√3)	√10)
		Pico Pass	√4)	√4)	√4)	√4)	√4)			√4)	√4)
		SRI4K, SRIX4K	√	√	√	√	√			√	√
		SRI512, SRT512	√	√	√	√	√			√	√
	ISO18092/ ECMA-340	Sony FeliCa	√5)	√5)	√5)	√5)	√5)			√5)	√5)
	ISO15693	EM4x33	√3)	√3)	√3)	√3)	√3)			√3)	√3)
		EM4x35	√3)	√3)	√3)	√3)	√3)			√3)	√3)
		HID iCLASS	√	√1)	√1)	√1)	√10)			√1)	√10)
		HID iCLASS SE/ SR/ Elite	√	√1)	√1)	√1)	√10)			√1)	√10)
		iCODE SLI	√	√	√	√	√			√	√10)
		LEGIC Advant	√1)	√1)	√1)	√1)	√1)			√1)	√1)
		M24LR16/64		√	√	√	√			√	√
		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 RFID Card Module Supporting List

Frequency	Classification	Card Module Abbreviation / Compatible Readers	[DF] EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30 Series	[SFMH] EP10C/ EP20C/ EP20CK/ EP20CQ/ EP20CKQ/ EP30 Series	[NO] EP10C	[NP] EP10C/ EP20CQ/ EP20CKQ	[NI] EP10C/ EP20CQ/ EP20CKQ	[NOL] EP10C	[NPL] EP10C	[NOH] EP10C	[NIH] EP10C
125kHz		AWID			√	√	√	√	√		
		Cardax			√	√	√	√	√		
		CASI-RUSCO			√	√	√	√	√		
		Cotag									
		Deister			√6)	√6)	√6)	√6)	√6)		
		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)		
		G-Prox				√6)	√6)		√6)		
		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)		
		ICT			√8)	√8)	√8)	√8)	√8)		
		IDTECK			√	√	√	√	√		
		Indaia									
		ioProx									
		ISONAS			√	√	√	√	√		
		Keri			√	√	√	√	√		
		Miro			√	√	√	√	√		
		Nedap			√6)	√6)	√6)	√6)	√6)		
		Nexwatch				√	√		√		
		PAC			√8)	√8)	√8)	√8)	√8)		
		Pyramid			√	√	√	√	√		
		Q5			√	√	√	√	√		
		T5557, T5567, T5577			√	√	√	√	√		
		TITAN (EM4050)			√	√	√	√	√		
		UNIQUE			√	√	√	√	√		
		ZODIAC			√	√	√	√	√		
		Globally Available		√				√	√	√	√
	Availability	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	√		√	√	√				

1) UID only
2) Read /write enhanced security features on request
3) Read /write in direct chip command mode
4) UID only, read/write on request
5) UID + read /write public area
6) Hash value only
7) Only emulation of 4100, 4102
8) On request
9) Without encryption
10) UID+PAC (CSN & Facility Code), read /write on request
11) In preparation
13) EV2/EV3 supported as part of the EV1 upward compatibility
14) From FW V4.05
20) PAC (CSN & Facility Code), read /write on request

Installation and Configuration

The EP10C multi-tech smart reader shall be installed and configured in accordance with the following requirements.

- The installation shall be carried out by qualified and experienced personnel in accordance with applicable codes, standards, and regulations.
- The controller shall be configured using the on-board webserver or through software provided by the manufacturer.
- The configuration shall include setting up access levels, user accounts, time schedules, and other relevant parameters.
- The controller shall be tested and commissioned to ensure proper operation and compliance with the specified requirements.

Warranty and Support

The EP10C multi-tech smart 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 EP10C multi-tech smart 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.