Architect & Engineer Specifications

Green Label Product

inBio Pro Series of Control Panels

Available Models: inBio-160/260/460 Pro

Date: Click or tap to enter a date.

Ver: 2.0

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PART 1 – GENERAL

This document has been developed by ZKTeco, which aims to detail the minimum specifications for the design, distribution, deployment, monitoring, maintenance, and operation of our Green Label Access Control Panel **inBio-160/260/460 Pro.** Hereinafter, inBio-160/260/460 Pro will be referred as **"inBio Pro series".**

1.01   Summary

inBio Pro Series is a project-oriented high-end product line with unique features such as embedded fingerprint verification and advanced access control functions, which can be managed by TCP/IP communication through LAN or WAN networks.

1.02   System Description

inBio Pro Series provides a complete access control solution in association with ZKBioSecurity software. In combination with the FR1300 RS485 reader, the panels can authenticate users under multiple verification modes such as fingerprint, card, and password for a higher security level.

1.03   Quality Assurance

ZKTeco is a globally renowned enterprise with biometric verification as its core technique. ZKTeco shall provide technical assistance and support in all aspects.

1.04   Delivery, Storage, and Handling

Order: ZKTeco's ordering guidelines must be followed to avoid installation delays.

Delivery: The inBio Pro Series of Control Panels shall be delivered in the manufacturer's standard, unopened and undamaged package with identification labels intact.

Storage and Protection: The inBio Pro Series of Control Panels shall be stored, installed, operated, and protected from exposure to harmful weather conditions and at the environmental conditions recommended by the manufacturer.

1.05   Product Compliances

- FCC Part 15 Class A
- CE Compliant
- RoHS (2011/65/EU & 2015/863)

1.06   Warranty

The warranty on this product is 3 years from the date of purchase.

And the customer service duration for this product is granted according to the region where it is purchased.

PART 2 – PRODUCT

ZKTeco is responsible for developing the standards, guidelines, including the minimum requirements.

The installation of the **inBio Pro series** in an access control system using readers and controllers can enable a variety of entry, exit, and lock systems: Electrical locks, Parking barriers, Turnstiles, etc.

2.01 Model and Variants

Manufacturer: ZKTeco Co., Ltd.

Category: Access Control Panel (Controller)

Model Name: inBio Pro series

Variants: Three (1-Door, 2-Door, and 4-Door)

2.02 Technical Features

Common Features of inBio Pro Series

1. Built-in web-server interface to operate without physically touching the controller.

2. It can provide connectivity and control of up to a maximum of 4 doors or up to 4 turnstiles.

3. It supports connectivity of up to a maximum of 8 Wiegand interface readers and 4 Serial interface readers based on RS485.

4. It can support up to a maximum of 12 programmable Inputs/Outputs on board.

5. It supports up to 20,000 fingerprint templates, 60,000 cards, and 100,000 events and transactions.

6. inBio Pro series also supports SD card for storing the cardholder data and access events. The memory card must be formatted with a standard FAT file system, to allow reading them using a standard card reader connected to a system, if the access control hardware fails. It creates a backup in addition to the internal memory.

7. Embedded fingerprint verification and advanced access control functions can be managed by TCP/IP communication through LAN or WAN networks.

8. It can be connected with the ZKBioSecurity web-based software platform to provide a full-featured

biometric security solution for:

    a. Data download

    b. Commands

    c. Real-time monitoring and alert notifications

9. In combination with the FR1300S RS485 reader, the panels can authenticate users under multiple verification modes such as Fingerprint, Card, and Password for a higher security level.

10. The FR Series of readers transmit fingerprint templates to the inBio Pro series via RS485 for fast and accurate matching with templates stored in the database. Wiegand inputs are also provided for traditional RFID readers.

11. inBio Pro series can be configured on the network and it supports HTTP/HTTPS communication. The webserver allows the setting and modification of network parameters directly.

12. Data protection in case of power failure: The Controller continues to operate if the network connection is interrupted.

13. Upgradable firmware.

14. It has LED status indicators for Power, TCP/IP, RS485, Working State, and Access Card Read.

15. Auxiliary relays can facilitate External Lights, Alarms, and Intrusion detection Panel. Also, extra locking devices or gate controllers can be accessed.

16. Anti-Passback, First-Card Opening, Multi-Card Opening, Duress Password Entry, and Auxiliary input/output linkages are built into the controller firmware.

17. inBio Pro series ensures control over one or two accesses (Reader + keypad at entry or at entry/exit) or four entry accesses.

18. Capacity to handle and process 60,000 cards.

- Logical process of stand-alone (No access authorization server or PC should be inspected by the controller, except in particular situations).

- The capability to work in a consolidated mode (A particular mode in which the software creates an exception to the access permission, for circumstances of doubt, etc.)

- The possibility of linking various reader technologies to the same controller as proximity, and barcode, etc.

19. Configurable Inputs

- For free entry or exit, subject to an individual activation schedule.

- Door status controlling (Open, Closed, Always Open, etc.).

- For managing locks or barriers (conditional sensors or inputs allowing, for instance, the opening of a gate only if a car is present) subject to an individual activation schedule.

- Additional entrances whose use is subject to an individual activation schedule.

20. Configurable Outputs

- Door activation relay

- Specific alarm relay

- Ancillary command relay (configured as an exit relay in the case of reader module for a directional barrier)

- Individual relay configuration

21. Remote-controlled operation of the relay via software.

22. Managing a door alarm: Door open too long, Door not opened following verification of a valid card, Door forced open.

23. The possibility of connecting a keypad to use PIN codes.

- The use of PIN codes can be imposed individually (on a card-by-card basis).

- The use of PIN codes can be imposed on a reader-by-reader basis.

- The use of PIN codes can be subject to an individual usage schedule (on a reader-by-reader basis).

- The use of the PIN code can be imposed for single direction monitored access only (entry or exit).

- The card will be invalid after the introduction of three wrong PIN's (card + code).

- The possibility of triggering automatic functions by activating the relay with the use of PIN code and card.

24. The possibility of activating a logical control of geographical position i.e., anti-passback for 199 area zones, subject to an individual activation schedule (on a reader-by-reader basis).

25. The possibility of activating duplicate punch functionality (on a reader-by-reader basis). This prevents a card to be re-presented within a specified time on the reader.

26. The possibility of activating the controller's command relay from an optional keypad to which it is

connected.

- An individual authorization for using these commands can be selected (per card and per reader).

27. Possibility of disabling access (paused / resume free access).

28. Possibility of selecting the types of events to be stored, per door.

29. Saving events in case of power failure.

30. Real-time clock

31. LED watchdog for the electronic components

32. A network loop bypass relay making it possible to isolate the Controller from the communication loop in the case of power failure, etc.

33. TTL inputs configured as NO/NC

34. Security and Network

    a. IPv4/v6

    b. Host/Controller connection protected by TLS 1.2/1.1

    c. Generate and load custom peer certificates for TLS

    d. Port-based network access control using 802.1X

    e. HTTPS protection

    f. Secure cookies

    g. Authorized IP address filtering

    h. IP Client Proxy

    i. Strong password enforcement

35. Door Control

    a. 4 Reader ports: Data, Wiegand, or RS485

    b. 12 programmable inputs, 4 relays

36. Access Control

    a. Gate Control Mode

    b. Door Lock/Sensor Delay duration

    c. Configurable Door Sensor type

    d. Door availability time-period

  e. Verification Mode Combination

  f. Master/Salve Device configuration

  g. AUX-In configuration

  h. Combined verification supports up to 99 Access Groups

  i. Supports up to 50 Time Rules, including 3 time zones in one rule

37. Card Formats

  a. Entire card number reported on invalid read

  b. Up to 9-digit (64-bit) User ID and up to 8-digit PIN numbers maximum

  c. Activation/Deactivation Date or Date & Time

38. Card Reader Functions

  a. Multiple card format support by the reader

  b. Paired reader support

  c. Alternate reader support

  d. Turnstile support

  e. Biometric device support

  f. Supports host-based approval rules

  g. Software support with programmable user commands, card input

  h. Anti-Passback support

    i. Reader-based (IN, OUT, and IN/OUT)

  i. Duress Mode to identify any threat

39. Device Data Functions

  a. Encrypted data

  b. Configurable card database

  c. Supports up to 9 digital card numbers

  d. Supports User ID up to 9 digits

  e. Supports Password up to 8 digits

  f. Card issue code of up to 32 bits

40. Intrusion Alarm Functions

    a.   Supports entry delays and exit delays

    b.   Area monitoring

    c.   Provides control and alarm processing from the software

41. Supported Integrations

    a.   Regional I/O shows I/O status

    b.   Reader firmware and configuration download

    c.   Supports up to 8 RS485 I/O protocols

    d.   Supports up to 12 strong authentication readers

42. System Functions

    a.   Relay count activations

    b.   Interoperability with older host software using Legacy Mode feature

    c.   Synchronize time using NTP

Category	Feature	Specifications		
Capacity	Max. Fingerprint Template (1:1 or 1: N)	20,000		
	Max. Transaction Log	100,000		
	Max. Access Cards	60,000		
	Max. Event Logs	100,000		
Verification	Biometric	Fingerprint Reader		
	Access Cards	RFID S50/S70 IC Card (13.56MHz), 125kHz EM		
General	Processor	1.2GHz CPU 32-bit		
	Memory	256GB Flash and 128MB RAM		
Hardware	Operating Temp.	0°C to 45°C (32°F to 113°F)		
	Operating Humidity	20% to 80%		
	Dimension (W x H x D)	300mm x 90mm x 350mm		
	Net Weight	0.37kg		
	Gross Weight after Package	inBio-160 Pro: 0.88kg inBio-260 Pro: 0.92kg inBio-460 Pro: 1.12kg		
		inBio-160 Pro	**inBio-260 Pro**	**inBio-460 Pro**
	No. of Controlled Doors	1 Door	2 Doors	4 Doors
	No. of Supported Readers	4 ‣ RS485 reader ×2 ‣ 26-bit Wiegand reader ×2	8 ‣ RS485 reader ×4 ‣ 26-bit Wiegand reader ×4	12 ‣ RS485 reader ×8 ‣ 26-bit Wiegand reader ×4
	Types of Supported Readers	26-bit Wiegand and RS485 FR Series reader	26-bit Wiegand and RS485 FR Series reader	26-bit Wiegand and RS485 FR Series reader
	No. of Inputs	3 ‣ Exit Device ×1 ‣ Door Status ×1 ‣ AUX ×1	6 ‣ Exit Device ×2 ‣ Door Status ×2 ‣ AUX ×2	12 ‣ Exit Device ×4 ‣ Door Status ×4 ‣ AUX ×4
	No. of Outputs	2 ‣ Form C Relay for Lock ×1 ‣ Form C Relay for Aux Output ×1	4 ‣ Form C Relay for Lock ×2 ‣ Form C Relay for Aux Output ×2	8 ‣ Form C Relay or Lock ×4 ‣ Form C Relay for Aux Output ×4
	Reset	Through DIP Switch		
	Ethernet	TCP/IP Supported *(10/100 Mbps, Auto MDI/MDIX)*		
Electrical	Power	Voltage: DC 12V (9.6V to 14.4V) Max. Current during initialization: 2A		
	Switch input VIH	5V		
	Switch input VIL	Max. 0V		
	Switch Pull-up Resistance	The input ports are pulled up with 4.7k resistors		
	Relay	Voltage: Max. 36VDC Current: 2A, Max. 2A Durability: 10,000,000 times operation at max. resistive load of 30V		

Supported Software	ZKBioSecurity
Certificates	CE, FCC, RoHS

2.03 Wiring Connection

1. inBio Pro series is connected to the Access Control System server running the management software by Ethernet 10/100BaseT or RS485. This cable distance must be less than 100m (about 330ft). For cable length of more than 100m (about 330ft), use HUB to amplify the signal.

2. inBio Pro series is connected directly with a PC through a straight network cable. As the inBio Pro series supports auto MDI/MDIX, it is unnecessary to use a crossover type cable.

3. The card reader is based on contactless smart card 13.56MHz technology for connection to the inBio Pro series with Wiegand interface.

4. The biometric reader will continue to operate to control access in offline mode. When the network connection is restored, the reader will automatically upload and synchronize its database with the server.

5. If the RS485 fingerprint reader is powered from the inBio Pro series, the length of the wire should be less than 100m (about 330ft)

6. The External RS485 interface can supply a maximum of 500mA current; the RS485 fingerprint reader's startup current is 240mA. So, inBio Pro series can power two RS485 fingerprint readers.

7. If the IP address of the inBio Pro series is unknown or the device does not work normally, the number 7 DIP switch can be used to restore the inBio Pro series to factory default settings. The parameters which get reset are device IP address, communication password, gateway, and subnet mask. The switch is OFF by default. When it is moved up and down for three times within 10 seconds and finally returned to OFF position, the factory settings will be restored after it is restarted.

8. Below are the basic connections:

    - The Power Cord after installation

    - Connecting the Panel to the INTERNET

    - Connecting Wiegand Reader

    - Connecting RS485 Reader

    - DIP Switch Setting for RS485 Reader

    - Connecting Door Sensor & Exit Button

    - Connecting Electric locks to the Panel

    - Connecting Input and output Devices (AUX I/O Connection)

2.04 Communication Settings

1. **PUSH Server Settings**

   PUSH Server: Indicates that the controller proactively pushes information to the server.

   IP Mode: The default server IP is 0.0.0.0 and you can modify it as required.

   Port: The default Port is 80 and you can modify it as required.

   Domain Mode: The default value of the Domain Name is null, and you can set its value as required.

2. **Port Settings**

   HTTP Port: It indicates the client initiation of an HTTP request to a specified port on the server. The default HTTP Port is 80 and you can modify it as required.

PART 3 – EXECUTION

3.01 Pre-requites (If any)

Any setup or precautions that need to be followed before installation.

3.02 Installation

1. All installations performed by the successful specifier must comply with the national and code of practice standards.

2. Operating Environment: Indoor, No wind, No direct light, 0°C to 45°C (32°F to 113°F).

3. All the devices, tools, hardware, software, and software licenses necessary for the complete implementation of the Access Control System, as defined in this document, shall be supplied, and installed under this subcontract.

4. Cable laying precautions and safety measures must be specified.

5. For exiting at selected doors, a (touchless Exit Button TLEB101/102) shall be given, as specified by the owner, or as shown in the drawing.

6. Exit card readers must be provided for highly protected areas identified or described in the drawings, to allow exact monitoring of people entering and leaving the preset area.

3.03 Testing

All installation needs to be checked for stability and performance post-installation.

3.04 Maintenance

Procedure and methods for maintaining the access control system, including the Access Control devices, Controller, and Readers. For all other components also, maintenance procedure needs to be regulated.