

Columbo Hardware Manual

Compact, Durable FBI-Certified PIV* FAP 30
Single-Print Scanner

- Software-Based Autodetect
- Automatic Spoof Rejection
- Presentation Attack Detection w/SDK

** MITRE certification in process*



Contents

| | |
|--|----------|
| REVISION HISTORY | 2 |
| INTRODUCTION | 3 |
| PRODUCT DETAILS | 4 |
| ACCESSORIES | 4 |
| HARDWARE CONNECTION SETUP | 5 |
| USB Connector Pin Description | 5 |
| USB Cable | 5 |
| SPECIFICATIONS | 6 |
| OS Support | 6 |
| System Requirements | 6 |
| General Specifications | 6 |
| Electrical DC Characteristics (VDD = 5Vdc, Top = 25°C) | 7 |
| Block Diagram | 7 |
| SUPPORT | 8 |
| CLEANING AND SANITIZATION | 8 |
| WARRANTY INFORMATION | 8 |

Revision History

| Revision No. | Issue Date | Comments |
|--------------|------------|---|
| 2.0 | 2022.10 | Update Product Details, Hardware Connection Setup, and General Specifications |
| 1.0 | 2021.04 | 1.0 Version Preliminary |



The Most Accurate Solution for Unattended Verification

The Columbo is the world's smallest, lightest, and fastest FBI PIV FAP 30 certified single-fingerprint scanners, producing the highest quality fingerprint images in a small and lightweight form factor. The Columbo is provided with a full-featured SDK to enable effective integration into applications requiring certified quality images, meeting the needs for enrollment and verification applications common in international standards-based programs. Columbo is incredibly accurate and much more difficult to spoof than run-of-the-mill competitors, providing a new alternative for unattended verification applications.

Faster

- Rapid dry-finger capture
- No need to clean latent prints in high-volume situations
- Easy integration via single SDK for all Integrated Biometrics FBI-certified products

Better

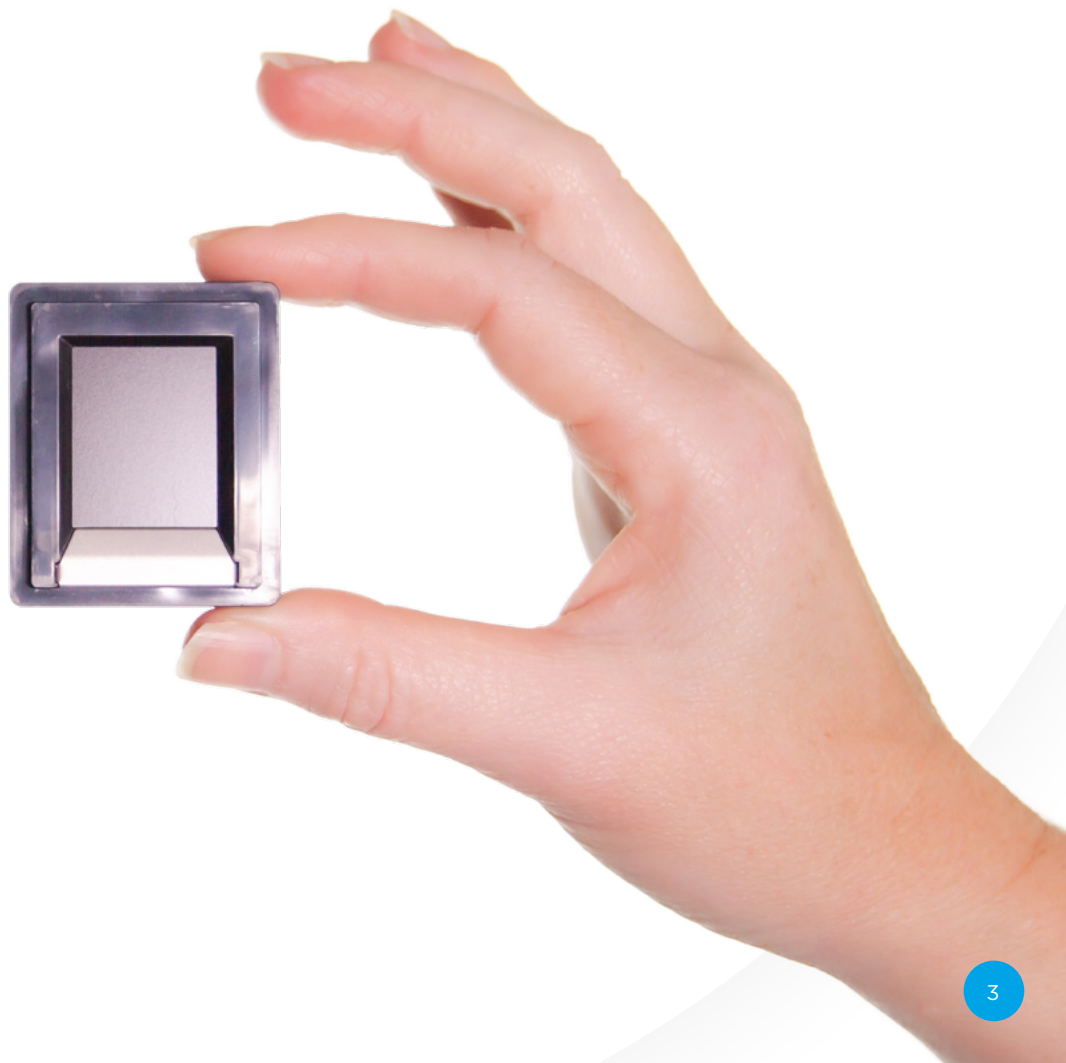
- Unaffected by extreme temperatures, direct sunlight, or bright artificial lights
- Compact, lightweight, and rugged
- Rejects common spoofing attacks
- Emits no bright lights during scans
- Meets or exceeds US military durability specifications

Smarter

- Competitive pricing
- Extremely low power consumption
- Eliminates consumables (silicone membranes or cleaning tape)
- Lower maintenance costs

Software-Based Autodetect

- Scanner automatically detects the finger capture that generates the highest quality image without user intervention.
- Application developers enable this feature through the Integrated Biometrics software development kit (SDK)



Product Details

1. LES: Light Emitting Sensor, Sensing Area

The patented LES film is a multilayer, polymer composite containing particles that luminesce (give off light) in the presence of an electrical field.

2. Conductive Bezel

The bezel, in conjunction with a user's finger, complete a low-level electrical circuit which causes the particles in the film to emit light.

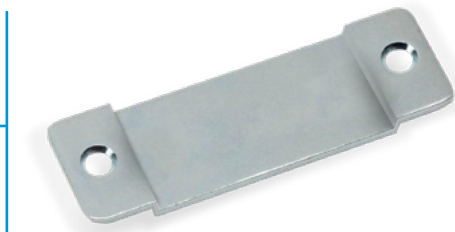


Accessories

USB-A/C Cable



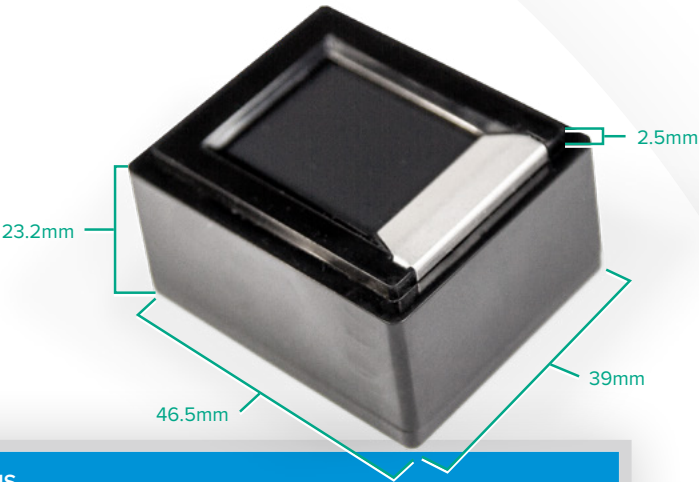
Mounting Bracket – Part Number: CMBRACK-001



Grip Case – Part Number: CMSSGCA-000



Hardware Connection Setup

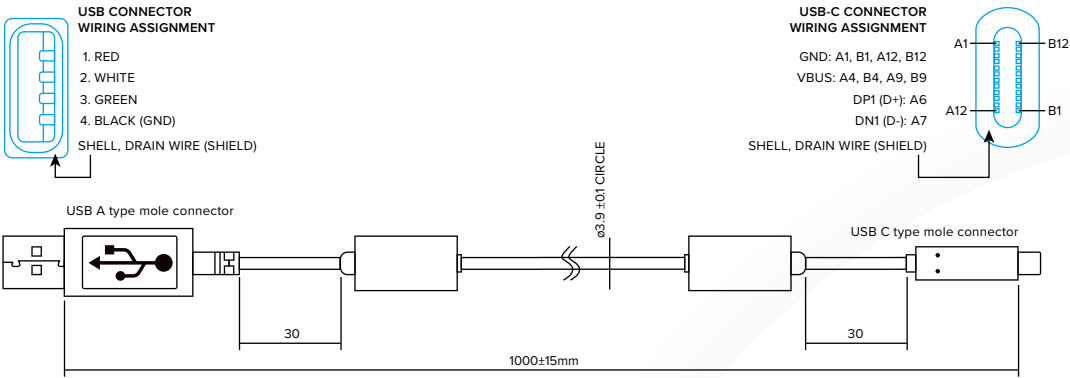


| ITEM | SPECIFICATIONS |
|-----------------------|---|
| Scanner Physical Size | 46.5 mm x 39 mm x 25.7 mm |
| Total Weight | < 41 grams (not including cable or bracket) |

USB Connector Pin Description

| PIN NUMBER | TYPE | DESCRIPTION |
|------------|-------|-------------|
| 1 | V_BUS | +5 VDC |
| 2 | USB | Data (-) |
| 3 | USB | Data (+) |
| 4 | G | Ground |
| 5 | G | Shield GND |

USB Cable



Specifications

OS Support

| SECTION | SPECIFICATIONS |
|---------|--|
| Windows | Windows Desktop Editions 7, 8, 10, 11 |
| Linux | Linux Kernel 4.0 or newer (32/64 bit, ARMv6, ARMv7) <ul style="list-style-type: none">• Ubuntu 18.04, 20.04 or newer• Debian 10, 11, or newer |
| Android | Android 10, 11, 12 |

System Requirements

| SECTION | SPECIFICATIONS |
|---------|--|
| CPU | x86 and x64 2.0GHz or higher ARM 1.0 GHz or higher |
| Memory | 512MB or higher |

General Specifications

| SECTION | SPECIFICATIONS |
|-----------------------------------|---|
| Sensor Type | LES |
| Camera | CMOS |
| Resolution | 500 ppi |
| Grayscale | 256 grayscale dynamic range |
| Image Size | 400 x 500 pixels |
| Supported Image Formats | RAW, JPEG2000, BMP, PNG, WSQ (FBI-approved) |
| Encryption | N/A |
| FBI / Image Certifications | PIV 071006, FIPS 201, FAP 30 / Certified to Mobile ID Requirements |
| Speed | Min frame rate > 10FPS, slaps and rolls |
| API Interface | Capture single finger, multi-device / multi-thread support |
| Quality Scoring | NFIQ v1 supported on all OSes and NFIQ2 for Windows |
| Product Weight | < 41g / < 45g (with bracket) |
| Platen Size | 20.32 mm x 25.4 mm / 0.8" x 1.0" |
| Sensing Area | 20.32 mm x 25.4 mm / 0.8" x 1.0" |
| Interface | USB 2.0 |
| Power Source | USB Host |
| USB Voltage Level | 4.4V ~ 5.25V |
| USB Certification | USB-IF USB.org |
| FCC/CE Conformance | FCC Part15 (per ANSI C62.4:2003) Class A, CSA ICES-003 Class A, CE Emissions: EN55022:2006 Class A, CE Immunity EN 55024:1998/A1:2001/A2:2003, IEC61000-4-2 |
| Air Discharge / Contact Discharge | In compliance with IEC 61000-4-2 |
| Equipment Safety | IEC 60950-1 |
| Hazardous Material | RoHS Directive 2002/95/EC |
| Vibration Test | Per Mil-STD-810F (Method 514.5), Category 24, Flg.514.5C-17 |

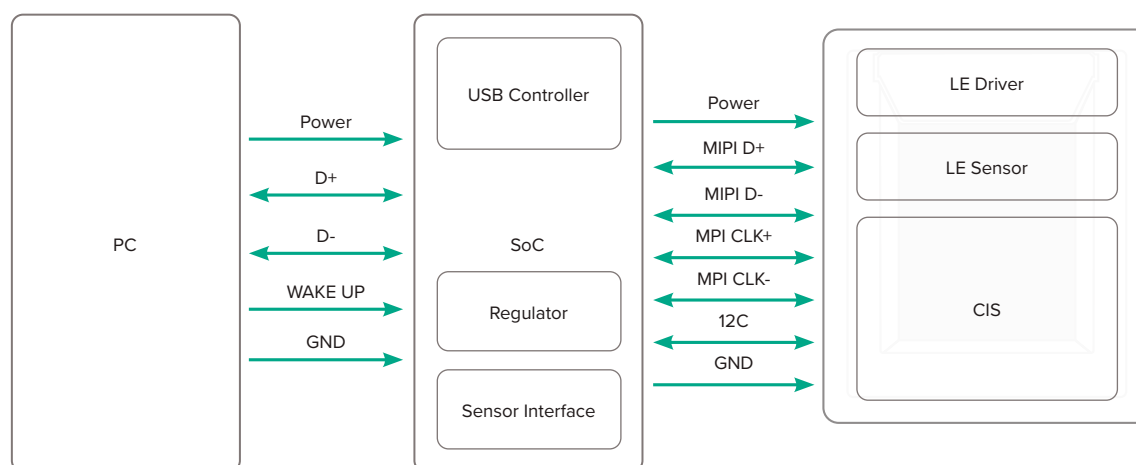
General Specifications continued...

| SECTION | SPECIFICATIONS |
|-----------------------------------|---|
| Compliance/Certifications | <ul style="list-style-type: none"> iBeta ISO 30107-3 Compliant MOSIP L1 Compliant |
| Operating Temperature | -10°C ~ +55°C / 14°F ~ 131°F |
| Humidity | 30~85% RH < 40°C / 104°F (Non-condensing) |
| Storage Temperature | -40°C ~ +80°C / -40°F ~ 176°F |
| Ingress Protection / Water / Dust | IP65 sealed bezel to scanning surface |
| Surface Durability | MIL-C-675c4.5010, MIL-STD-810F |
| Mean-Time Between Failures (MTBF) | Based on 200 full single-finger enrollments per day, the Columbo MTBF is 66 years. |

Electrical DC Characteristics (VDD = 5Vdc, Top = 25°C)

| SECTION | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|------|------|------|------|
| Power Supply Voltage (VBUS) | 4.4 | | 5.25 | V |
| Full Scanning | — | 99 | 110 | mA |
| Standby | | | 28 | mA |
| D+ and D- | USB | | | |

Block Diagram



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Cleaning And Sanitization

For proper cleaning and disinfection of IB products, visit:

<https://integratedbiometrics.com/cleaning>

Warranty Information

All products have a 12-month warranty starting from the date of delivery.

Additional years warranties available. Inquire with your salesperson.

View the warranty here: integratedbiometrics.com/warranty

ABOUT INTEGRATED BIOMETRICS

Integrated Biometrics (IB), a pioneer in biometrics technology, designs and manufactures advanced, high-resolution touchless identification SDK software and the world's most mobile, durable and reliable FBI-certified fingerprint sensors. Law enforcement, military, homeland security, national identity, election validation, financial and social services organizations around the world rely on Integrated Biometrics' products for fast, accurate enrollment, identification and verification, even in remote locations under extreme conditions.



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