INTEGRATED
BIOMETRICS

Watson

A FBI Appendix F Certified FAP 45
Two-Finger Roll Scanner

Hardware Development Manual

Warranty Information

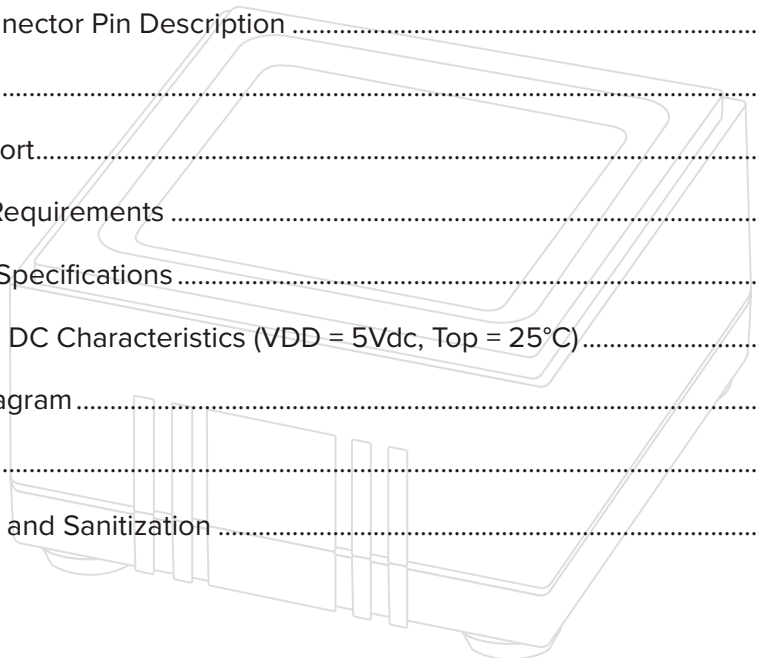
All products have a 12-month warranty starting from the date of delivery. Additional years warranties available. Inquire with your salesperson.

View the warranty here: DOWNLOAD

Revision History

Revision No.	Issue Date	Comments
1.6	2022.4	Adjust Electrical DC Characteristics
1.5	2020.08	Change device's picture
1.4	2019.3	Reformatted, removed part number
1.3	2016.7	Change specifications
1.2	2014.3	Reformatted
1.1	2013.1	Change specifications
1.0	2012.6	1.0 version preliminary

Contents



1 WATSON

Watson uses Integrated Biometrics' patented light-emitting sensor (LES) technology to deliver fixed and mobile FBI Certified fingerprint imaging in an exceptionally durable, lightweight scanner.

Other benefits include:

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
- Emits no bright lights during scans
- Meets or exceeds US military durability specifications

Smarter

- 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)

01 **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.

02 **Conductive Bezel**

The stainless bezel creates a low-level electric circuit which causes the particles in the film to luminesce or emit light.

03 **USB-C, Micro-USB B, & USB-A**

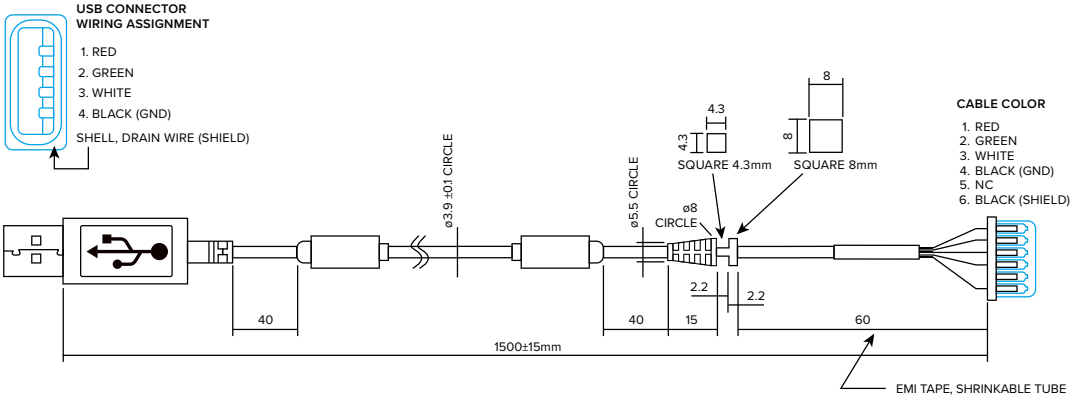
Please contact a sales representative for more information.

ITEM	SPECIFICATIONS
Scanner Physical Size	60.3mm x 62.3mm x 33.0mm
Total Weight	180 grams

USB Connector Pin Description

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

USB Cable



OS Support

SECTION	SPEC.
Windows	Windows 7 or later (32-bit and 64-bit)
Linux	Kernel 2.6 or later (32-bit, 64-bit, ARMv7-A, and ARMv8-A)
Android	Android 4.0 or later (32-bit, 64-bit, ARMv7-A, and ARMv8-A)

System Requirements

SECTION	SPEC.
CPU	x86 and x64 I 2.0GHz or higher ARM I 1.0 GHz or higher
Memory	512MB or higher

General Specifications

SECTION	SPEC.
Sensor Type	LES
Camera	CMOS
Resolution	500PPI
Platen Size	1.6” x 1.5” / 40.64mm x 38.1mm
Sensing Area	1.6” x 1.5” / 40.64mm x 38.1mm
Grayscale	256 grayscale dynamic range
Image Size	800 x 750 pixels
Supported Image Formats	RAW, JPEG2000, BMP, PNG, WSQ
FBI Certification/Image Certifications	Certification Mobile ID IQS FAP45, PIV, GSA FIPS201, FBI Appendix F Certified
Interface	USB 2.0
API Interface	Capture single-finger/two-finger direct, single-finger rolls, multi-device / multi-thread support
USB Certification Spec	USB-IF USB.org
USB Level	4.4V ~ 5.25V
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
Speed	Minimum > 10fps for Galaxy Nexus 1.2 GHz dual-core ARM Cortex-A9 or equivalent; 17 FPS for Intel 2.8 GHz processor or equivalent
Equipment Safety	IEC 60950-1
Product Weight	< 180 grams

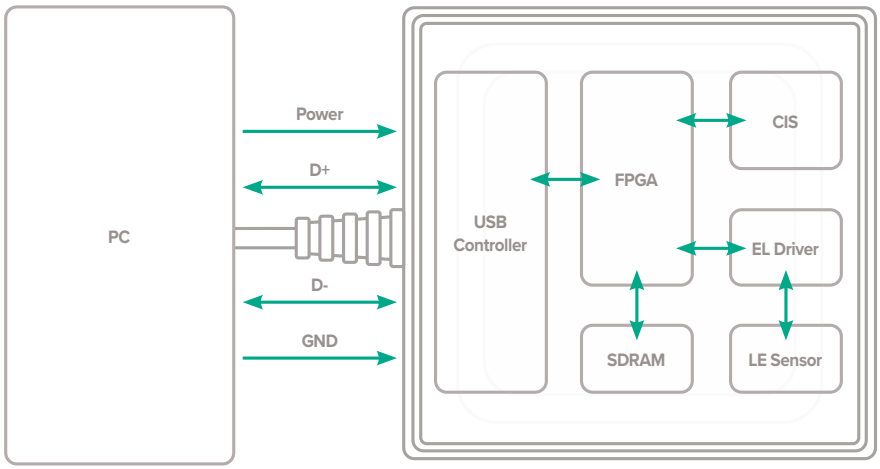
General Specifications continued...

SECTION	SPEC.
Power Consumption	<300mA during full scanning mode / standby <40mA
Power Source	USB Host
Air Discharge / Contact Discharge	In compliance with IEC 61000-4-2
Operating Temperature	-10°C ~ +55°C
Storage Temperature	-40°C ~ +80°C
Humidity	30 ~ 85 %RH < 40°C (Non-condensing)
Hazardous Material	RoHS Directive 2002/95/EC
Ingress Protection / Water/Dust	IP65 Sealed bezel to scanning surface
Surface Durability	MIL/C-675c4.5010, MIL-STD-810F

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

SECTION	MIN.	TYP.	MAX.	UNIT
Power Supply Voltage (VBUS)	4.5		5.5	V
Full Scanning	—	—	300	mA
Standby			40	mA
On/Off VIH (LVTTL)	2			V
On/Off VIL (LVTTL)		0.8		V
On/Off MAX (LVTTL)			3.6	V
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

ABOUT INTEGRATED BIOMETRICS

Integrated Biometrics (IB) designs and manufactures FBI-certified fingerprint sensors for law enforcement, military operations, homeland security, national identity, election validation, social services, and a wide range of commercial applications. The company's patented Light Emitting Sensor (LES) Film results in lightweight scanners that outperform traditional prism-based devices in size, power consumption, speed, portability, spoof-detection and reliability. Identity management solution providers, government agencies, and corporations around the world rely on IB sensors for fast and accurate enrollment, verification and identification, even in remote locations and hostile environmental conditions.

Far more effective in mobile applications environments than silicon or other traditional prism-based sensors, Integrated Biometrics' FBI-certified fingerprint sensors work in any natural or artificial light, on dry or moist fingers and in dusty conditions. LES film resists abrasion and does not require the frequent cleaning cycles of other technologies.

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