eyeLock®
Advanced Biometric Identity Authentication

FXT™ Data Sheet

Combined face and iris recognition terminal with innovative face- display positioning at a capture range of 40 to 70 cm

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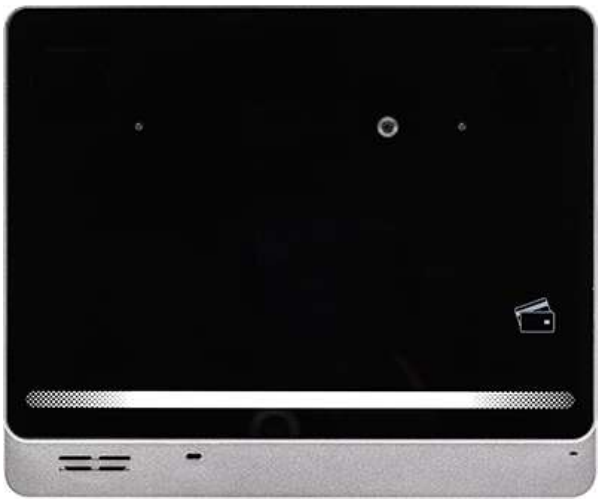

APPLICATION

Highly versatile enrollment and authentication station with flexible mounting options for physical access control and other ID management applications

Product Description

The FXT combined face and iris recognition system provides unprecedented subject ease of use for both through a highly innovative and intuitive user positioning approach in both modalities.

Subjects will view their own face in a front-facing, high resolution 5.0-inch color display to position themselves correctly within the real-time graphic interface.

For iris recognition, which has a working distance range of 40 to 70 cm, they will intuitively and naturally move to the correct position by simply centering and sizing their face image to the box within the display. In addition, the positioning box and the top border turn green to indicate proper distance positioning, after which the iris biometrics images are automatically collected, provided that the real time image quality metrics are satisfied. Vocalized commands give additional positioning guidance in real time. For face recognition, the working distance is 0.4 to 1.0 meters so that the subject needs only look at the display to initiate face image capture.

The FXT can be configured in automatic recognition mode in several dual factor and multi- factor combinations with the on-board card reader and PIN capabilities. In addition, the system meets industry standards for iris and face image capture making it ideal for large scale enrollment programs. In particular, the FXT exceeds the ISO 19794-6 iris image spatial resolution specification, delivering an impressive 3.0 lp /mm at 50% contrast.

The system is extremely fast in both subject detection and image capture. It utilizes an integrated time-of-flight (TOF) proximity and distance sensor for fast and precise detection of all subjects as they approach the system. Typical image capture times in recognition mode will be 0.5 seconds or less.

Innovative, Intuitive Subject Positioning

While the FXT has a working distance of 40 to 70 cm, the system's time of flight (TOF) sensor detects subjects from over 1.0 meter. The subject's face is immediately displayed on the 5.0- inch high-resolution color display, guiding the subject to naturally center his / her face by simply positioning it within the "guide box". Optional vocalized instructions and text commands can also direct the user to move forward or back to get into range. When in the proper range, the guide box and top border turn green, indicating to the subject to stop and wait until the image capture process is completed. Like a smart phone "selfie" image, this interface is highly intuitive, with typical capture and authentication times of 0.5 seconds from proper positioning.

The following figures are given for illustration purposes only and may differ from the actual product.

Color visual cues for proper distance positioning

MOVE FORWARD
Blue - too far away

GOOD
Green - OK!

MOVE BACKWARD
Red - too close

Key Features

Feature	User Advantages
State-of-the-art optical design	The optical design includes utilizing highest quality optics and very fast shutter speeds, which allows the systems to exceed industry standards for image quality.
Multiple camera design	Four cameras for ultra-fast subject positioning and flexibility in either face or iris recognitions mode
Advanced, proprietary stereoscopic eye localization in iris modality	The FXT accurately locates the position of both eyes in 3D to optimize system speed, subject ease of positioning and iris image quality. This function enables reliable subject distance positioning indicators shown as blue, green or red color distance positioning codes.
Highest image quality	Meets or exceeds the ISO 19794-6 2011 and ISO 29794-6 iris imaging specifications.
Compact, lightweight design	Optimizes placement or mounting options, including wall, swing arm, or e-Gate mounting solutions.
Simplest of iris recognition user instructions	Very simple and repeatable subject instructions: • Position face within guide box in display (like smartphone “selfie”) • Move toward the system to size head to box • Once within range, the box and indicator bar will turn green to indicate proper positioning Iris image capture is automatic once subject is in proper position and real time image quality metrics parameters are met.
Intuitive face recognition user interface	Modeled after latest smart-phone user displays, the user experience will be intuitive and effortless for almost all subjects.
Iris recognition stand-off distance and depth of capture	40 to 70 cm, ensuring robust, fast and easy positioning. Comfortable range for subjects in wide variety of desktop, countertop, kiosk or wall mount placements.
Face capture range	From 0.4 to 1.0 meters

Feature	User Advantages
Real time image quality metrics	Image quality metrics included in capture algorithm: • Subject gaze angle (i.e. whether the subject is looking directly ahead at the imager) • Subject motion • Focus • Usable iris area (occlusion)
Simultaneous face image capture in iris recognition mode	A face image is always collected at same time as capture of iris images, so that the minimum data record consists of one face image and two iris images.
Large, embedded data bases for on-board identification and authentication	Standard on-board (local) iris database of 200,000 subjects (iris template-pairs), with matching speed of under 1.0 second in 1:N mode for full database. Face template data base size of 50,000 subjects.
Versatile dual and multi-factor configuration support	Various authentication configurations with biometrics modalities and PIN or card
Standard embedded MIFARE card reader	Supports MIFARE, DESFire, MIFARE Plus, and MIFARE Classic cards (ISO/IEC 14443) including latest EV3 version
Optional HID card reader	Optional hardware version replaces MIFARE reader with HID OmniKey chipset reader for HID iClass and iClass SE cards
OSDP	Supported through RS-485 terminals
Template-on-card (TOC)	Supported for both MIFARE and HID card readers
Cable connectors	For access control (AC) version, plug-in connector kit for all cabling (except RJ-45 Ethernet) included in accessories package
Card reader	Standard in AC version only: embedded MiFare / DesFire card reader for support of dual factor authentication, or backup authentication for special case users.

Feature	User Advantages
I/O interface	Standard connections include TCP/IP(Ethernet), Wiegand IN, Wiegand OUT, 4 x GPI, 2 x RS-485, RS-232, contact relay, tamper, factory reset, SIM socket (factory option)
Language support	Display languages of English, Korea, Traditional Chinese, Simplified Chinese, Japanese, Spanish, Italian, Arabic, and Russian.
Voice positioning commands	Vocalizations for positioning guidance can be modified by local systems integrators through modification of on-board .wav files, or by special request to Eyelock support.

Technical Specifications

Specification	Description
Embedded CPU	ARM quad-core
On-board iris and face algorithms for embedded encoding and matching	Standard in all configurations
Supported biometrics modes	Iris only, face only, iris first then face, iris or face, iris and face
Flexible Software Development Kit (SDK) configurations	High Level SDKs offered in C# (.NET), C++, C, and Java versions. Includes host side reference application to connect to FXT resident services layer so that integrator does not need to program FXT device.
Configuration Utility software application	This host side software application provides centralized (network) control and setup of system configuration, Wiegand settings, and IP address settings, as well as providing for centralized FW upgrades.
Dimensions	180 x 150 x 32 mm (7.1 x 5.9 x 1.3 inches) without mounting wall plate
Weight	900 g without wall plate
On-board data storage	Up to 200,000 iris template pairs with match speed about 1.0 second either in 1:N mode (identification) or 1:1 mode (verification). Up to 50,000 face templates
Dual factor authentication	Iris or face with either smart card or PIN as second factor
Iris image pixel resolution	Exceeds ISO 19794-6 2011 and ISO 29794-6 iris imaging standards with MTF of 3.0 lp / mm at 50% contrast
Iris image output	640 x 480 pixels, 8bit depth, supports multiple formats
Adjustable FAR (false accept rate)	Adjustable iris algorithm threshold range of 10^{-5} to 10^{-14} FMR at 10^{-6} FNMR. Default is FMR of 10^{-8}.

Specification	Description
Enrollment mode operational iris imaging distance (stand-off range) and depth of field	50 to 70 cm range (20 cm depth of capture range) in enrollment mode. Meets or exceeds ISO 19794-6 2011 and 29794-6 specifications.
Recognition mode operational iris imaging distance	Recognition mode provides up to 40 to 70 cm range (30 cm depth of capture) for small scale applications. Does not necessarily meet ISO specifications. Range selectable in SDK.
Iris positioning indicators	Face positioning within box in LCD serves to center users face in X-Y dimensions. Subject will fit size of face to box size within LCD display for distance(Z) positioning, with simultaneous color bar display for correct distance positioning: · **Blue**: too far away · **Green**: OK · **Red**: too close Supplemental voice distance feedback is also simultaneous. Vocalizations convertible to local language via .wav file substitution.
Auto tilt for iris imaging	Internal auto tilt range of +25 to -25 degrees, which corresponds to height range of approximately 50 cm. System can be mounted at any height to accommodate local user population. Contact Eyelock for mounting recommendations.
Time of iris image capture and authentication	Typically about 0.5 second from time the subject's eyes are properly placed within capture volume.
IR illumination for iris imaging	Dual wavelength LEDs (spectral range of 700 to 900 nm) that conforms to ISO best practices for iris imaging.
Face image capture	Standard 24bit color and NIR images, both accessible from SDK
Face recognition	Standard on-board encoding and matching
Audio	1W embedded speaker

Specification	Description
Operating temperature range	-20 to 50˚C
Humidity range	10 to 90% RH, non-condensing
Illuminator eye safety standard	IEC 62471
Network interface, standard	10/100/1000 Base-T Ethernet (RJ45 connector), USB OTG support
RFID Card reader	Integrated MiFare and DESFire reader as standard HID Omnikey embedded chipset option for iClass cards
SIM card socket	Factory option
Mounting	¼ - 20 UNC (consumer camera tripod mount type) standard
Accessories	Detachable wall mount plate for easy wall installation. Terminal and wired connectors for: Wiegand IN, Wiegand OUT, RS-232, 2 x RS-485, 4 x GPI, dry contact relay
OSDP	Yes, supported through RS-485 port
Power requirement	12 to 24V DC AC power adapter included in all versions.
Power consumption	Maximum 25 W
POE+	Supported (optional)

Contact Information

Please Contact Eyelock or your representative for more information about the FXT product, EIS Development Kits (SDK) and other supporting software.

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