

EMX-30™ Iris Recognition System

Tilt-head dual-eye system with USB connectivity



APPLICATION

Enrollment and authentication in desktop and countertop applications

Product Description

The CMITech EMX-30 is a USB tethered dual eye iris biometrics imaging device that quickly captures highest quality iris biometric images. Easy to use, the system's simple and intuitive user interface makes positioning fast and repeatable, even for subjects with little or no acclimation. The advanced image capture and processing architecture offers the fastest iris biometric capture speeds in the industry.

Operating at a range of 32 to 35 cm, the EMX-30 is fully hands-free and contactless. The exclusive

face-finding functionality locates each subject's position and automatically tilts the imager head to adjust for subject height. This functionality is optical, which allows the EMX-30 to be placed behind an optical glass or plastic window, making it ideal for placement behind an environmental shield.

Developed with the latest in system design technologies by one of the leaders in the industry, the EMX-30 is physically robust, highly reliable and durable. It is configured as a USB tethered device, making the EMX-30 highly cost effective.

Key Features

Feature

State-of-the-art optical design

Advanced, proprietary stereoscopic eye localization

Simple and repeatable subject user interface

Simplest of user instructions

Proprietary optics for positioning indicators eliminate parallax viewing problems

Automatic vertical height adjustment

Stand-off distance of 32 to 35 cm

Large depth of capture of 30 mm

User Advantages

The optical design includes utilizing highest quality optics and very fast shutter speeds, which allows the systems to exceed industry standards for image quality. The measured modulation transfer functions (MTF) exceeds the specification in the ISO 19794-6 and 29794-6 standards.

The EMX-30 accurately locates the position of both eyes in 3D in near-real time to optimize subject ease of positioning and iris image quality. This feature enables the fast and reliable subject distance positioning indicators.

Subject positioning is simple and intuitive. The subject merely aligns his / her eyes with the positioning mirrors, and then moves toward or away from the system based on simple, colored LED indications:

- Blue is too far away;
- Red is too close; and
- Green is OK.

The combination of the easy to use positioning features also means that the instructions to subjects are simple and straightforward. (See User Interface and Subject Instructions.)

The proprietary and patented design of the color LEDs for distance positioning can only be viewed by one eye at a time, eliminating any parallax viewing problems that might cause the subject to reposition his / her head. The result is a smooth and intuitive positioning experience, even if the subject's head is positioned slightly to one side.

The system accommodates subjects of different heights. After automatically locating the subject's face and eyes, the EMX-30 tilts the iris imaging subsystem. This function is optical, which allows for utilization behind optical glass or plastic shielding.

Comfortable range for subjects in wide variety of kiosk, desktop or countertop placements.

The very large depth of capture enhances robustness and ease of positioning.

Key Features

Feature

High speed, simultaneous dual imagers

Near-real time off-axis gaze detection

Motion detection

Face image capture

Very wide interpupillary distance range of 45 to 85 mm

Compact, lightweight design

User Advantages

Dual iris imagers acquire iris images at very high speed, 30 frames per second. The system controller monitors in near real time various quality metrics to determine which iris image pairs should be selected as the biometric sample.

Capturing the correct position of the eyes is essential for optimal iris biometrics. The system automatically detects subject gaze angle (i.e. whether the subject is looking directly ahead at the imager). If the subject is looking away, the system will automatically wait until the subject looks straight ahead before capturing a valid iris biometric image.

System detects subject eye motion during the capture sequence, and waits until subject meets motion threshold (which is adjustable) in order to assure there is no adverse motion blurring.

Face images are collected in synchronization with the biometric iris images, so that the data record consists of one face image and two iris image. (The face images do not qualify as ISO standard, and therefore are not intended for face recognition or an ID card photo, but are intended for manual verification of the subject's identity and association in the data record with the iris images.)

The wide interpupillary distance range accommodates all adults and young children, making it ideal for large scale, public authentication programs.

Very small size of design optimizes placement or mounting options.

User Interface and Subject Instructions

Simplest and most repeatable subject interface available:

- Partially transparent mirror guides subject placement in X-Y dimensions.
- Easy to use color LED's at center of mirror indicate correct placement of 32 to 35 cm in Z dimension.



MOVE FORWARD



MOVE BACKWARD



STOP / CAPTURE

The subject should be instructed to:

- Place the reflection of his / her eyes in the center of the mirror.
- Keep eyes wide open.
- Look at the colored LEDs and move his / her head toward or away from system according to the color.
- Stop when LED is green, and hold the position for about 1 second.

Technical Specifications

Dimensions	219 x 161 x 58 mm (8.6 x 6.3 x 2.3 inches)
Weight	465 grams (16.4 ounces) without base
Image output	Meets ISO 19794-6 and 29794-6 specifications; exceeds 4.0 lp/mm @ > 60% contrast
Iris diameter	240 pixels for average 11.5 mm diameter iris (200 to 285 pixels for full range of 9.5 to 13.5 mm diameter irises)
Iris image pixel resolution	640 x 480 pixels, 8 bits Supports multiple formats
Operational iris imaging distance (stand-off range)	315 to 345 mm (12.4 to 13.6 inches)
Depth of field	30 mm (1.2 inches)
Inter-pupillary distance covered	45 to 85mm (1.8 to 3.4 inches)
Time of capture	Typically around 0.5 second, from time of head placement
IR illumination for iris imaging	Dual LED: wavelengths of 850 nm nominal (~ 50%); and 750 nm nominal (~ 50%)
Subject positioning LED indicators	Blue: Subject too far away Red: Subject is too close Green: Subject within capture volume
Maximum user positioning speed	125 mm per second (4.9 inches per sec.) in "Z" direction
Operating temperature range	0 to 40 °C
Humidity	10 to 90% RH, non-condensing
Eye safety standard	IEC 62471
Interface	USB 2.0 High Speed
Power	Independent power supply required: 2.0 A at 5.0 V (supplied with system)
OS Compatibility	Windows 7, 8, 8.1 and 10, both 32 and 64 bit versions Linux Ubuntu 12.04, 14.04 and 16.04 LTS
Other certifications	CE , FCC, RoHS, WHQL

Contact

Please Contact Fulcrum Biometrics Southern Africa at

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for more information about the EMX-30 product, CMIRIS Software Development Kits (SDK) and other supporting software.

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