BMT-20

Cost Effective and Easy-to-use Iris Recognition for Biometric Enrollment

Product Description

The CMITech BMT-20 is a binoculars-type iris biometrics imaging device that simultaneously and quickly captures highest quality iris biometric images. Easy to use, the system can be reliably positioned by the subject with minimal instructions, or by an operator with the aid of positioning feedback LEDs on the top of the imager's housing.

The patent-pending optical design of the BMT-20 features expanded depth of field and a very large tolerance for inter-pupillary distance, which provide superior tolerance for the positioning of all subjects' eyes. The BMT-20 is ideal for enrollment programs of all sizes, including those involving very young children.

Designed with the latest in optical and system control technology by one of the leaders in the industry, the BMT-20 is physically robust, highly reliable and durable. Meeting the elevated IP64 intrusion protection standard, this system is sealed against dust and other airborne particles to provide extended life in harsh environmental conditions.

Dedicated to building trust with end-users and partners alike, CMITech's products and technology are intended to improve processes, mechanisms and quality within all enrollment programs, large and small.

Key Features

Feature	User Advantages
• **State-of-the-art optical design**	The optical design includes utilizing highest quality optics and long internal optical path, which allows the BMT-20 to exceed industry standards for image quality as specified by ISO in the 19794-6 document. The standard is 4.0 lp/mm at 60% contrast ratio.
• **Single sensor design**	The proprietary and patented single sensor design interleaves left and right iris images for simultaneous capture. By utilizing only a single sensor, power consumption through the USB connection is minimized. This allows for optimized NIR illumination, resulting in the shortest exposure times possible, thereby minimizing any potential for motion blurring.
• **Long internal optical path**	The optical design is folded within the BMT-20 system, providing the longest optical path of any binoculars-type iris recognition imager. At 365 mm (+/- 15 mm), the long optical path provides much greater depth of field while minimizing optical distortions.

BMT-20

Feature	User Advantages

• **Dedicated, on-board image processor supports very high speed, simultaneous capture of subjects irises**

In real-time coordination with the host PC software, the on-board image processor facilitates very high speed image capture, resulting in the fastest and most robust capture of both of the subject's irises at the same time. Typically, both irises are captured within one (1.0) second from the time that the subject places the system on his/her forehead.

• **Extended depth of field**

The BMT-20 is capable of imaging over a depth of 30 mm, making the system highly tolerant of a) subject positioning in the "Z" dimension and b) how deep the subject's eyes are relative to his/her forehead. The BMT-20 therefore offers highly robust iris imaging across the widest range of people, including small children.

• **Wide inter-pupillary distance tolerance**

The BMT-20 can capture iris image pairs from subjects with inter-pupillary distances as small as 4.0 cm, which is the minimum distance for a child of 5 years old. This makes the BMT-20 ideal for enrollment of all subjects within all national identity programs.

• **All solid-state design-no moving parts**

The superior optical design of the BMT-20 provides the widest inter-pupillary distance and depth of field without needing any moving components. Reliability and durability are optimized with an all solid-sate design.

• **Meets IP64-6 specifications for particulate intrusion prevention**

Meeting this very high standard means that the BMT-20 is highly resistant to contamination by very small airborne particles such as dust and dirt, such as would be commonly found in harsh non-conditioned enrollment environments. Stringently tested against this standard, this feature will provide extended life and high reliability. Other systems only meet the lesser IP54 specification.

• **Internal white LED**

Internal, white light emitting diodes (LEDs) are turned on just prior to imaging to constrict the subject's pupil for iris biometric image capture, providing ideally sized pupils for optimal iris biometric identification and authentication.

In dark rooms, the pupils of most subjects will dilate, shrinking the amount of iris area, which diminishes the effectiveness of the iris biometric image. By making the iris area larger, the iris biometric images are optimized.

• **Near-real time off-axis gaze detection**

Detection of subject gaze angle (i.e. whether the subject is looking directly ahead at the imager), which is the correct position of the eyes for optimal iris biometrics. If the subject is looking away, the system will automatically wait to capture a valid iris biometric image until the subject does look straight ahead.

• **Motion detection**

System calculates eye motion relative to the system, and waits until subject meets motion threshold (which is adjustable) in order to assure there is no adverse motion blurring of images.

BMT-20

Feature	User Advantages

• **Foldable side visors and forehead positioning rest**

Side visors and the forehead positioning aid on the BMT-20 combine to block bright light, such as sunlight, from entering the optical path of the system during imaging. In this way, the BMT-20 can be utilized outdoors and still deliver ideal iris biometrics imaging.

• **External color LED positioning indicators**

The BMT-20 can be operated in two modes: first by the subject himself after being giving short and easy to understand instructions. The system can also be operated by a trained operator, who will position the device based on external color LED's to center the system over the subject's eyes.

Red :   Device is too high
Blue :   Device is too low
Green : Device position is OK

• **Position sensor**

A position sensor detects if the system is upside down, preventing capture of images that can be reversed, left and right. This assures that all iris biometric samples are exactly as intended.

• **High temperature range**

The tested and certified operating temperature range of the BMT-20 is a full 0 to 50 degrees Celsius, making the system fully useable in non-conditioned environments in the hottest of summer days.

• **Powered by USB 2.0 cable**

The BMT-20 is fully powered by the USB 2.0 connection (maximum 500 mA at 5.0 V), which means that it operates without an independent power supply.

Technical Specifications

Dimensions	219 x 161 x 58 mm (8.6 x 6.3 x 2.3 inches)
Weight	680 g (1.5 lbs)
MTF / spatial resolution	Exceeds 4.0 lp/mm @ > 60% contrast
Pixel resolution	18.4 to 20 pixels/mm
Iris image pixel resolution	640 x 480 pixels
Image output	Meets ISO 19794-6
Capture distance (to forehead)	0 to 10mm (0.0 to 0.4 inches)
Optical path distance	350 to 380 mm
Depth of field	30 mm (1.2 inches)
Inter-pupillary distance covered	40 to 90mm (1.6 to 3.5 inches)
Time of capture	Around 1 second, typical, from time of head placement
IR illumination for iris imaging	Dual LED: wavelengths of 850 nm nominal (~ 60%); and 750 nm nominal (~ 40%)

Technical Specifications, continued

Internal LED for pupil contraction	Broadband visible (white)
External LED indications for operator assisted positioning	Red: Device position is too high Blue: Device position is too low Green: Device position is OK White: Image capture in progress
Operating temperature range	0 to 50°C
Humidity	10 to 90% RH, non-condensing
Eye safety standard	IEC 62471, IEC 60825-1
Durability	IP64 intrusion prevention standard
Interface	USB 2.0 High Speed
Power	USB 2.0 (500 mA at 5V) No additional power required
PC hardware and OS requirements	Intel® Atom™ or above processor Windows XP 32 bit or above Linux OS version of SDK and drivers in progress
Other certifications	CE , FCC, USB-IF, India STQC, RoHS, WHQL