Embedded Fingerprint Matching Module
Utilizing Fujitsu® Swipe Sensor

DESCRIPTION

AN EMBEDDED OR STAND-ALONE FINGERPRINT MATCHING MODULE ALLOWS OEMS AND SYSTEM INTEGRATORS TO QUICKLY INCORPORATE BIOMETRIC SECURITY INTO A BROAD RANGE OF EMBEDDED SECURITY AND CONTROLLED ACCESS APPLICATIONS.

Swipe Sensor shown in optional Panel Mount Bezel

Application— The Multi-Purpose Embedded Fingerprint Matching Modules (MPMs) have been designed for flexibility. They can be operated in a standalone mode by adding just a battery and a lock actuator, allowing for quick development of virtually any type of lock. Or, they can be operated in conjunction with a system when expanded operation is desired. In this mode, they can be connected via their serial or IR port to a master device, like a processor linked into a network, or simply have some of their on-board features controlled from a trusted outside device, like a PDA.

Stand Alone Mode— ODI Security's MPMs are completely self-contained, and include all the programming, matching algorithms, template space, and user interface required to build a locking system. No programming is needed. Apply a battery and you can register, add users, open locks, etc. An array of preprogammed lock actuator profiles can open from a simple solenoid to more complex gear motors and positioning sensors. Piezoelectric and dual wound solenoids, as well as a host of other actuators, are supported in the on board pre-programmed code.

User Interface— A full featured User Interface is pre-programmed on-board. This includes everything you need to register, delete users, add users, etc, right down to low battery indication. A complete list is included in this datasheet.

Expandability— The MPM comes with a serial port for expandability for communication with outside devices.

Hardware— The MPM is a dual board set consisting of a Fujitsu MBF 310 swipe sensor (capacitive), an ARM7 processor, Flash, Fast SRAM, a serial port, a trusted device port, a power on micro-switch, LEDs for user feedback along with power regulation and drive circuitry for several lock actuators.

Special programming available— Many applications require special user interfaces, like a Day spa that has one time use lockers. Special programming can allow for several administrators, while also deleting the user upon opening the locker door. Please inquire for special programming, as minimum order quantities must be met.

Power— Although the module can be wire powered, it is optimized for the longest battery life. Power activation is by micro-switch, requiring very light force on the finger guide. When not in use, the module shuts off and has zero current draw. Depending upon the selection of lock actuator, the module system is designed for battery life in excess of one year. An auxiliary DC power pin is on all modules and can be used for any application that has protected batteries. A simple battery with a DC jack can be used for access if the consumer disregards the low battery indicator.

Security— This is an adjustable parameter and is default set to 1 in 10,000 False Accepts at under a 1% False Reject Rate. A patented tamper resistant feature is included on all modules. This feature switches the module into high security mode once 6 false attempts are made to enter the lock. After the sixth unsuccessful try, the module now requires two successive accepts before opening the lock. This feature dramatically increases the security level without affecting the False Reject Rate.

Speed— Optimization has resulted in a 0.01 second time from micro-switch activation to imaging, allowing for a smooth finger placement and swipe with no waiting or delays. Typical time from actuation to lock opening is under 2 seconds for a 5 user database.

No Template Loss— All templates are recorded in non-volatile, protected, Flash memory for safe and secure operations. On-board template storage is limited to 20 users for access speed considerations. On-board Flash memory can store up to 490 templates, if used in conjunction with external indexing. See detailed datasheet for explanation and applications.

Lock Actuators— The modules come with the built in and pre-programmed ability to drive multiple actuators, including: Single or dual wound solenoids, gear motor, or piezoelectric systems. Lock actuators can be purchased as an option with the modules for a complete turnkey system. Please inquire.

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Selected Specifications

⋯▷ **Match Time:** <2 seconds for up to 5 users, typical. Stores up to 20 users.

⋯▷ **Power:** <300 mW typical for 2 second match 6VDC, 75ma or 3.3VDC optional.

⋯▷ **Interface:** RS-232/RS-485.

⋯▷ **Match to Internal Template**

⋯▷ **I/O:** Pre-configured:
  ⋯▷ Solenoid opening, single or dual wound, piezo electric actuator or gear motor
  ⋯▷ Motor drive with positioning sensor pre-programmed
  ⋯▷ Power on microswitch
  ⋯▷ 2 GPIO (use SDK)

⋯▷ **User Interface (UI):** Preconfigured with LED feedback
  ⋯▷ Administrator (2)
  ⋯▷ Add User
  ⋯▷ Access OK, Lock Open
  ⋯▷ Access Denied
  ⋯▷ System Lockout
  ⋯▷ Power On
  ⋯▷ Shut Down
  ⋯▷ Enrollment (register)
  ⋯▷ Delete ALL users
  ⋯▷ Low Battery Warning
  ⋯▷ Tamper evident high security mode

⋯▷ **Size:** 1.4" x 1.6" x ~0.3" with universal mount.

⋯▷ *Connection options schematics available upon request.*

Circuit board with Fujitsu® MBF 310 swipe sensor

Options

⋯▷ Finished Bezel — with full finger bezel, suitable for finished product with mounting plate.

⋯▷ Trusted Device — serialized, encrypted TD with cable (FPC) up to 3 meters.

⋯▷ Full SDK for expanded applications.

Available modules

⋯▷ Fujitsu® MBF 310 fingerprint sensor, 500DPI, 8-bit grayscale images, 256 pixels wide.

Applications

⋯▷ Doors: office and residential
⋯▷ Garage door remote controls
⋯▷ Car/Truck keyless entry
⋯▷ Time/Attendance systems
⋯▷ Access Control systems
⋯▷ 1-time lockers:Gyms, Airports
⋯▷ Heavy equipment
⋯▷ Residential alarms
⋯▷ Medical cabinets and storage
⋯▷ Safety deposit boxes
⋯▷ Jewelry storage boxes
⋯▷ Home and hotel room safes
⋯▷ Tool Cabinets
⋯▷ TV remote controls
⋯▷ *Other uses...*

Part Numbering

AAA-BBB-N-D-EE (Suffix for kits -F-HHH)

AAA= Small Footprint Module (SFM)
  or Multiple Purpose Module (MPM)

BBB= Sensor select-
  Fujitsu® MBF 200 Array Sensor (200)
  or Fujitsu® MBF 310 Swipe Sensor (310)
  or Atmel® FingerChip® Swipe Sensor (AFC)

D= Template reset switch on board (H)
  or Deleted (N)

EE= Operating voltage 3 Volt (3V) *or* 6 Volt(6V)

If Applicable **F**= Plastic bezel option
  present (P) *or* no bezel (N)

If Applicable **HHH**= Software Development Kit (SDK) *or* Sales Kit (SLS)

Note: For details of SDK, see SDK Datasheet. Sales Kit includes one module with plastic panel mount bezel, battery pack, and solenoid.Sales Kits are completely operational fingerprint matching systems.

Design/Manufacturing

ODI Security can provide full turnkey design services in the US and manufacturing in our low cost off-shore facilities. Please inquire for your needs.