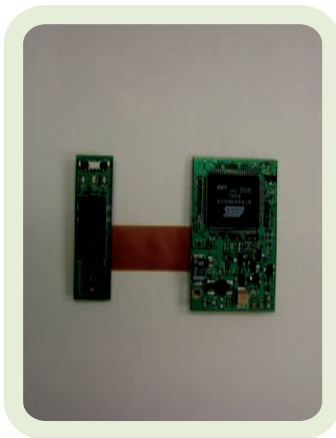
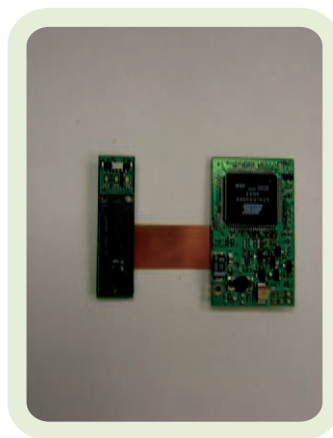


## Small Footprint Embedded Fingerprint Sensor Matching Modules

### SMALL FOOTPRINT MODULES USING ATMEL® FINGERCHIP® SENSOR



### FUJITSU® MBF 310 SENSOR



### DESCRIPTION

**Application:** ODI SECURITY'S SMALL FOOTPRINT FINGERPRINT SENSOR MODULES (SFM) HAVE BEEN DESIGNED TO FIT INTO SMALL CONSUMER PRODUCTS THAT TRADITIONALLY USED KEYS OR BUTTONS FOR ACCESS. These include, but are not limited to, padlocks, keyless auto entry, trigger locks, and bike locks. Only features needed to support these stand alone applications have been added to the SFM. The resulting modules are smaller, more single focused on the target products, and lower cost. It is now possible to apply the high security and convenience of fingerprint technology to products that previously used keys, with virtually no product size increase.

**Stand Alone:** The SFMs are completely self-contained and include all the programming, matching algorithms, template space, and user interface required to build a locking system. No other programming is needed. Apply a battery and you can register, add users, open locks, etc. An array of preprogrammed lock actuator profiles can open from a simple solenoid to more complex gear motors with positioning sensors. Piezoelectric and dual wound solenoids, as well as a host of other actuators, are supported in the on-board preprogrammed 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 brochure.

**Expandable:** The SFM comes with both an IR and a serial port, for expandability. Both are capable of communication with outside devices. In the case of the IR port, a trusted IR device can talk to the module to update, selectively or by group, add, or delete, the user templates on the module. This can be especially helpful as a feature in, for example, a padlock with multiple users, or multiple padlocks.

**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, as special programming requires minimum order quantities.

**Hardware:** USMs comes in swipe sensor form only, due to size and cost considerations. There is a two board set connected by a flex cable. The sensor board contains the IR port, three LEDs for user feedback, low battery, etc. (as defined in the User Interface (UI) document), the fingerprint sensor, and a power-on micro switch. The main board contains an ARM 7 processor, memory, and all connections needed for power and actuators. A finger guide is shipped with all samples for ease of demos, but is optional in production. The finger guide has the micro-switch activator built in. Since most lock applications will likely be space constrained, special ME design is generally needed for the

finger guide and PCB mountings, as well as the battery. ODI Security can provide direction or do the entire turnkey design and manufacturing of these parts if required.

**Power:** Although the module can be directly 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. Using the piezoelectric actuator, a module can last for up to 18 months, with two entries per day, on one set of lithium batteries (2 x CR2). 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 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:** No loss ever happens, even when batteries run out. All templates are recorded in a redundant fashion in protected, persistent, flash memory. On-board template storage is limited to 20 users for access speed considerations.

**Lock Actuators:** The modules come with the built in and preprogrammed 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 modules for a complete turnkey system. Please inquire.

## Small Footprint Embedded Fingerprint Matching Modules

### 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 or 3.3VDC optional.
- ❖ **Interface:** RS-232/RS-485/IR.
- ❖ **Match to Internal Template**
- ❖ **I/O:** Pre-configured:
  - ❖ Solenoid opening, single or dual wound, piezo electric actuator or gear motor
  - ❖ Motor drive with Hall Effect GPIO 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 high security mode
- ❖ **Size:** 1.0" x 1.6" x ~0.2" with universal mount.
- ❖ *Connection options schematics available upon request.*

### OPTIONS

- ❖ Finished Bezel — with full finger bezel, suitable for finished product with mounting plate. Custom designs are available.
- ❖ Custom Programming — available upon request.
- ❖ Lock Actuators — available upon request.
- ❖ Standard serial port or optional IR port for external communications

### 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.**

### AVAILABLE MODULES

- ❖ Atmel® FingerChip® fingerprint sensor, 500DPI, grayscale images, 280 pixels wide.
- ❖ Fujitsu® 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-C-D-EE (SUFFIX -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)

C= Infrared option: (I) or IR deleted (N)

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.*