

# FC2055A1-TCS1/TCS2

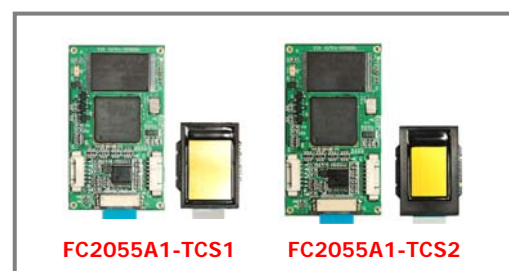
## FIMODULE Product Sheet

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### KEY FEATURES

- Embedded Stand-alone Fingerprint Identification Module (FIModule)
- Verification (One-To-One) and Identification (One-To-Many)
- Onboard Template & Record Data Storage
- Simple Serial RS-232C/CMOS Interface
- Downloading/Uploading Template from/to Host
- Easy to integrate giving minimal Time-To-Market



### APPLICATION

- Fingerprint based access control systems & door-lock
- Time attendance system using fingerprint
- Fingerprint based weapon control system
- Bank employee and customer identification system using fingerprint (Possibly combined with IC card)
- Fingerprint personal identification system
- Fingerprint based machine control
- Fingerprint based car locks

### DESCRIPTION

IZZIX FingerENGINE in FIModule follows the commonly accepted fingerprint identification scheme, which uses a set of specific fingerprint feature points (minutiae). However, it contains many powerful algorithmic solutions, which enhance the system performance and reliability. Some of them are listed below:

- Quality Check of Fingerprint Image
- Fully Tolerant to Fingerprint Distortion and Rotation(360°)
- Classification Feature by Global Feature Vector
- Efficient Feature Extraction
- Fingerprint Enroll Mode with Feature Collection
- Suitable Algorithm to 1:1 and 1:N Mode

And, FIModule acts as a biometric subsystem with template & record data storage. FIModule can be used to any fingerprint application and be controlled by a host sending/receiving command via the standard serial interface. FIModule makes fingerprint templates and stores directly in flash memory. Templates can also be exported for external memory and be imported by external fingerprint device and IZZIX FingerENGINE algorithm.

IZZIX FingerENGINE algorithm supports the **calibration routine(supplied by UPEK)** for UPEK sensor(TCS1 and TCS2).

- detects and repairs bad columns and bad rows
- calculates the gain offset settings table
- Time needed ; < 5 seconds

### QUICK SPECIFICATION

		Enrolled Fingerprints		Matching OK		
Response Time(sec)	1:1 Mode			< 0.85		
	1:N Mode	500			< 1.2	
		1,000			< 1.6	
		2,000			< 2.4	
FAR(False Acceptance Rate)	< 0.0001 %					
FRR(False Rejection Rate)	< 0.1 %					
Matching Mode	Verification(1:1 Mode), Identification(1:N Mode)					
Times of Enrollment (E <sub>T</sub> )	Feature Collection Mode, FCMode		3 times ⇒ 1 feature data/1 user			
	Feature Exclusive Mode, FEMode		n times(normally n = 5) ⇒ n feature data/1 user			
Memory Size	2Mbytes FlashROM					
Number of User & Record	FCMode		2,000		40,000	
	FEMode		400 (if E <sub>T</sub> = 5)			
User Data Size	512 Bytes (= 480 Bytes Template Data + 32 Bytes Header Data)					
Record Data Size	16 Bytes					
Start-up Time	Reset Time		440 msec			
Digital Signal Processor	TI TMS320VC5502					
Fingerprint Board	FB2055A1-TCH1					
Fingerprint Sensor	TCS1/TCS2, TouchChip Area Fingerprint Sensor (UPEK)					
Active Area Size	TCS1 = 12.8 × 18 mm		TCS2 = 10.4 × 14.4 mm			
Array Size(Pixels) & Resolution	TCS1 = 256 × 360 & 508 DPI		TCS2 = 208 × 288 & 508 DPI			
Dimensions & Weight	FB2055A1-TCH1		51 × 30 × 8.5 mm		< 11 gr	
	TCS1		27 × 20.4 × 3.5 mm		< 2 gr	
	TCS2					
Operating Voltage	5VDC					
Power Consumption (5VDC)	Standby	85mA	Sensing	107mA	PowerDisable	<6uA
	PowerDown1	66mA	PowerDown2	60mA	PowerDown3	28mA
	Calibration	115mA				
Temperature/Humidity	0°C ~ 70°C / 15% ~ 80 %					
External Interface	7Pin Connector : RS232C Level UART					

This specification is subject to change without prior notice.

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**DIGENT - Advanced Fingerprint Security Solution****Rev. 4.2**

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Refer to Manual for details and usage specification

